

Fortification examined

**How added nutrients can undermine
good nutrition**

A survey of 260 food products with added
vitamins and minerals

by

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1 Executive Summary

The UK has one of the most liberal fortification policies in Europe. Vitamins and minerals may be added to virtually all foodstuffs (the main exception is alcoholic drinks). Other European countries have widely differing approaches, some permitting very little fortification, and then only on the basis of proven need.

The European Commission has issued a discussion document with a view to harmonising fortification legislation law across Europe. The proposals are likely to result in the relaxation of current restrictive practices, rather than ensuring a high level of regulation throughout Europe. This will put the onus on regulators in member states to prove harm, rather than on food manufacturers to prove need or benefit of fortification.

However, the Food Commission believes that UK consumers would benefit from a more tightly regulated approach. Our survey of 260 foods which declare fortification on their labels shows that almost three-quarters were high in fat, sugar or salt. This leads to concern that fortification is being used as a marketing tactic to promote a range of processed foods, many of which we should be eating less of, rather than more, undermining the meaning of nutritious foods and healthy diets.

Summary of principle concerns

- Promotion of foods which are high in fats, sugars or salt – ingredients we are encouraged to cut back on for healthier diets;
- Promotion of the concept of added nutrients as improving health, versus promotion of an overall healthy diet;
- Development of contradictory nutrition education messages, misleading consumers on appropriate sources of nutrients;
- Inconsistent and inaccurate labelling which can prevent accurate comparison of products;

- Potential for excessive intakes of vitamins and minerals, especially by those who are also self-supplementing;
- Potential for metabolic imbalance as a consequence of ingesting nutrients in quantities or proportions not found within naturally occurring foodstuffs.

2 Background

2.1 Terminology

The addition of nutrients to food and drink can be defined as fortification, restoration, standardisation or substitution. The Codex Alimentarius Commission has proposed that *fortification* should be defined as the addition of one or more essential nutrients to a food, whether or not it is normally contained in the food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrients in the population or specific population groups.¹

Restoration refers to the addition of nutrient(s) to replace naturally occurring nutrients lost during manufacture, storage and handling. *Standardisation* refers to the addition of nutrients in order to compensate for natural or seasonal variations in nutrient levels. *Substitution* refers to the addition of nutrients to a substitute product (such as margarine) to the levels normally found in the food it is designed to replace (in this case, butter).^{2, 3}

2.2 Principles

Ten general principles for the addition of nutrients to foods have been proposed by the Codex Alimentarius Commission⁴:

- 1 The essential nutrient should be present at a level which will not result in either an excessive or an insignificant intake of the added essential nutrient considering amounts from other sources in the diet;
- 2 The addition of an essential nutrient to a food should not result in an adverse effect on the metabolism of any other nutrient;

- 3 The essential nutrient should be sufficiently stable in the food under customary conditions of packaging, storage, distribution and use;
- 4 The essential nutrient should be biologically available from the food;
- 5 The essential nutrient should not impart undesirable characteristics to the food (e.g. colour, taste, flavour, texture, cooking properties) and should not unduly shorten shelf-life;
- 6 Technology and processing facilities should be available to permit the addition of the essential nutrient in a satisfactory manner;
- 7 Addition of essential nutrients to foods should not be used to mislead or deceive the consumer as to the nutritional merit of the food;
- 8 The additional cost should be reasonable for the intended customer.
- 9 Methods of measuring, controlling and/or enforcing the levels of added nutrients in foods should be available;
- 10 When provision is made in food standards, regulations or guidelines for the addition of essential nutrients to foods, specific provisions should be included identifying the essential nutrients to be considered or to be required and the levels at which they should be present in the food to achieve their intended purpose.

Further principles were proposed in 1974 by the United States Food and Nutrition Board⁵ which stated the following conditions for their endorsement of fortification:

1. The intake of the nutrient is below the desirable level in the diets of a significant number of people;
2. The food used to supply the nutrient is likely to be consumed in quantities that will make a significant contribution to the diet of the population in need;
3. The addition of the nutrient is not likely to create an imbalance of essential nutrients;
4. The nutrient added is stable under proper conditions of storage and use;
5. The nutrient is physiologically available from the food;

6. There is reasonable insurance against excessive intake to a level of toxicity.

However, Mertz⁶ concluded that today's fortification does not meet three of these criteria:

1. Not all nutrients whose intake is below desirable level are included (very few products in the present survey provided supplemental magnesium or zinc, for example, and none provided supplemental copper);
2. Certain imbalances have been created;
3. There is no reasonable insurance against excessive intakes.

The present report identifies a further criteria that is not currently being met in many of the fortified foods sold in the UK, namely the one listed seventh by Codex, above:

4. *The addition of essential nutrients to foods may mislead or deceive the consumer as to the nutritional merit of the food.*

2.3 Technical notes

The fortification of staple foods is relatively straightforward. Water-soluble vitamins can be added in solution or dried form. Likewise, fat-soluble vitamins can be added directly or microencapsulated to introduce them as a water-soluble form and to protect them from oxygen and other components of the food.

But the technicalities of adding vitamins to processed foods are complex. There are many problems to be overcome, in particular the shelf life of the particular vitamins and their bioavailability. Not all vitamins are stable and their levels may decline during the shelf life of the product. Oxygen, humidity, heat, acids, reducing agents and light also play a part in the stability of many vitamins.⁷

The presence of some added nutrients may affect the bioavailability of others: for example, vitamin C can enhance the absorption of iron while reducing the absorption of selenium and copper.⁸

In the case of mineral fortification with iron there are further complications. The chemical form of iron that is most bioavailable is also the form that reacts most with the carrier food, causing problems with storage and flavour. The forms of iron that are the most stable are the ones with least bioavailability.⁹

The amount of vitamin referred to on any label will be the minimum expected to be found in the food up to the sell-by date. The UK Food Labelling regulations (1996) require that foods claiming to contain any specified nutrient should show on the label 'the percentage of the RDA of every vitamin and mineral in the claim, present in a quantified serving'. Additionally it is vital to, 'ensure that all the declared values are met over the period of the life of the product'.¹⁰ As some vitamins lose potency during storage, the initial amounts of added nutrients must be somewhat higher. This means that the risk of excessive intake must take into account the likelihood that some nutrients will be present at a higher level than that declared on the label.

In some instances the fortification of food has the added benefit, to the manufacturer, of extending the shelf life of the commodity. For example, vitamin C acts as an antioxidant within food. This helps to reduce the rate at which fats become rancid and prevents added colourings from fading. 'Vitamin C added to meat products such as sausages helps keep the fat fresh and helps keep the added dye bright red, making the fat look like lean meat for as long as the sausage sits on the shelf.'¹¹

2.4 History of fortification

There is evidence to suggest that one of the earliest cases of fortification dates back to 4000 BC when the Persian physician Melampus, medical advisor to Jason and the Argonauts, added iron filings to sweet wine to strengthen the sailors' resistance to spears and arrows and enhance their sexual potency.¹² But the real breakthroughs were to come nearly 6000 years later.

In 1833, the French chemist, Boussingault, recommended the addition of iodine to salt to prevent thyroid goitre in S. America. In 1918, vitamin A began to be added to margarine and in 1931, vitamin D was added to milk in the United States as a measure to help prevent rickets in children.¹³

Until the Second World War, fortification had generally been considered a public health measure, aimed at specific nutrition problems and at specific groups of people. The foods that served as vehicles for the fortification were carefully selected to be appropriate. But the market-driven micronutrient fortification since then has been described by US researchers Gussow and Akabas as being, 'unjustified by any previously demonstrated need for extra nutrients'.¹⁴ The authors also point out that it has been very difficult to establish any improvements in nutritional status in the USA as a result of the marked increase in fortification since the 1970s.

2.5 UK situation

Currently the UK has one of the most liberal fortification policies in the European Union (EU). The addition of vitamins and minerals is permitted to virtually all foodstuffs with the principle exception of alcoholic drinks.

This relatively liberal approach is not reflected elsewhere in Europe where fortification is often viewed in the same light as the use of food additives -- the manufacturers must make a case of need and show the absence of risk.¹⁵ Those who advocate free trade are keen to see the removal of restrictions on the use of fortification, as these are perceived as barriers to trade. It is with this in mind that the European Commission issued a discussion paper in 1997 on the subject (see 'Proposed EC changes' below).

In the UK there has been a legal requirement to fortify margarine with vitamins A and D since 1967, so that the levels are comparable with butter. However, there is no legal requirement for reduced and low fat spreads to be fortified, though most are fortified to the same extent as margarine.¹⁶

White and brown flours must be fortified with thiamin, niacin, calcium and iron (Bread and Flour Regulations of 1984). This is not the case with wholemeal flour, as the fortification is supposed to replace some of the nutrients lost during refining. The COMA report of 1981 suggested that there need no longer be mandatory fortification of flour,¹⁷ but the proposal to lift the legal requirement was opposed during public consultation, and fortification of flour remains a legal requirement.

For all other foods and drinks (with the exception of alcoholic drinks) fortification is permitted as long as:

- such an addition would not render the food ‘injurious to health’;
- the product is not controlled by a compositional standard restricting the addition of nutrients;
- the product is correctly labelled.¹⁸

There are some restrictions to the claims that a product can make regarding its micronutrient content. Such claims can only be made in relation to vitamins A, D, E, C, thiamin, riboflavin, B₆, folic acid, B₁₂, biotin and pantothenic acid; and minerals calcium, phosphorus, iron, magnesium, zinc, iodine.¹⁹ Additionally, if there is to be any claim about the nutrient content, then there are further criteria:

- a claim that a food is a ‘rich’ or an ‘excellent’ source of a vitamin means that a reasonable daily intake must provide at least half of the RDA for the nutrient;
- a claim that a food is a ‘source’ of a nutrient or ‘with added’ nutrient means that a reasonable daily intake must provide one sixth of its RDA.

Other restrictions on the fortification of food and drink with vitamins and minerals come from the Soil Association and its Standards for Organic Food and Farming. The addition of vitamins and minerals is only allowed where ‘... their use is legally required in the foodstuffs in which they are incorporated.’²⁰

2.6 Legislation in other countries

In the USA, deficiency diseases have been virtually eradicated in the general population, but while it is acknowledged that certain fortification practices have contributed to removing deficiencies, it is also recognised that inappropriate fortification could be harmful.²¹

The US Food and Drug Administration has proposed food fortification regulations which suggest that fortification can be used to:

- correct nutrient deficiencies;
- restore nutrients lost in processing, storage or handling;
- balance nutrient profile, in proportion to the caloric content;
- avoid nutritional inferiority in a food that replaces a traditional food;
- apply to foods not covered by a regulation that requires or prohibits nutrient additions.²²

However the American system is also governed by strict rules on labelling and the claims that can be made. In particular, the criterion that, if a health claim is to be made, the food ‘cannot possess any nutrient in an amount that increases risk of disease’. Certain nutrients are categorised as having the potential to cause harm, such as fat, saturated fat, cholesterol and sodium, and these have disqualifying limits set, above which claims cannot be made.²³ Nonetheless, fortification is permitted in a wide variety of foods as long as health claims are not made. The FDA has taken no action on this matter but has expressed its discomfort:

‘The Food and Drug Administration does not encourage indiscriminate addition of nutrients to foods, nor does it consider it appropriate to fortify fresh produce, meat, poultry or fish products, sugars or snack foods such as candies and carbonated beverages.’²⁴

In France fortification is not encouraged. According to legislation, enrichment, standardisation and supplementation are only permitted for foods with special dietary

uses, e.g. infant or low energy food. Nothing is added to margarine. Normal foods can carry the label ‘with a guaranteed vitamin content’ only when special processing is employed which leaves the natural amount of nutrients unaltered and in the case of restoration of vitamins lost during manufacture.²⁵ Similar policies are in place in the Netherlands, Norway and Finland.

Table 1. Fortification rules in Europe differ substantially from state to state.²⁶

	Which nutrients?	Allowed in...
UK	no restriction	nearly all foods
Belgium	restricted list of those allowed	all foods
Germany	restricted list of those allowed	all foods
Italy	no restriction	only dietetic foods
France	restricted list of those allowed	only dietetic foods
Netherlands	list of those prohibited	all foods
Finland	restricted list of those allowed	restricted food categories
Sweden	no restriction	restricted food categories
Denmark	short list of those allowed	restricted food categories
Norway	short list of those allowed	very restricted food categories

2.6.1 The Australian Experience

In a country where the inhabitants routinely obtain over 400% of the RDI of vitamin C from their diets, it may be hard to imagine why the food would need fortifying with the vitamin. Surveys in Australia consistently reveal that the food supply contains more than adequate amounts of nutrients to satisfy the population and there are few nutritional deficiencies, with the exception of the Aboriginal communities. But Australia has recently been through a process of ‘harmonisation’ of fortification policy. And the results have raised considerable consumer concerns.

The National Food Authority (NFA), as the Australia and New Zealand Food Standards Authority (ANZFS) was then known, originally adopted the Codex Alimentarius Commission's general principles (see 'Current situation – Principles' above), and specified the following conditions for the addition of vitamins and minerals to food:

- 1 the restoration of vitamins and minerals to those levels found in foods prior to any processing;
- 2 restoration to allow for nutritional equivalence of substitute foods, e.g. the addition of vitamin A and D to margarine as a substitute for butter;
- 3 fortification with additional vitamins and minerals where there is proven public health and nutrition need.

Consumer and nutritional groups supported this. But certain food manufacturers, including the Australian Breakfast Cereal Industry Association (led by Kellogg) argued that the policy was too restrictive.

The NFA's policy was subjected to intense scrutiny. At one point a report was published suggesting that the work of the Authority should be confined to "...health and safety – the strict meaning so as to exclude nutrition".²⁷ The authors of the report, economists, concluded that in a food regulation context, nutrition considerations in public decisions are 'uneconomic' and an 'impediment to commercial interests.'

The National Food Standards Council, to whom the NFA recommendations were submitted, rejected the original proposals. Instead they advised the NFA to base fortification policy on the principle of 'no-harm'. The burden of proof was to be placed on the regulator to demonstrate a risk to public health and safety, rather than on the regulated to demonstrate a scientific need or benefit for adding nutrients to food products.

Revised standards were accepted with the following key features:

- vitamins and minerals may be added at moderate levels to some basic foods provided the vitamin and mineral then provides at least 5% of the RDI per reference quantity, prior to processing
- foods which historically had been fortified with a vitamin or mineral by a significant proportion of manufacturers, e.g. breakfast cereals, may continue to be fortified with those vitamins and minerals at moderate levels;
- the criteria underpinning nutrient content claims were amended to create a disincentive to the unlimited or liberal amounts of some nutrients added to food products. A ‘source’ claim can be made for a listed nutrient at 10% of the scheduled RDI per reference quantity and a ‘good source’ claim at 25% of the RDI per reference quantity.

According to commentator Mark Lawrence “The influence of nutrient fortification policy on the nutrient composition of food and the subsequent nutrient intake of the population highlights its fundamental importance to public health.”²⁸

Lawrence anticipates the demand from manufacturers to make health claims for functional foods. “This,” he says, “highlights the need for food regulators to have a rational nutrient fortification policy in place. The fortification of food with novel levels of nutrients is being proposed as one potential form of functional foods. A policy based on public health principles will provide a secure foundation to ensure that regulators are positioned to effectively manage this issue and thereby protect public health.”

2.7 Proposed EC changes

The issue of food fortification in Europe was discussed in 1992. Proposals to harmonise laws were suspended on the assumption that existing EU treaties would suffice to ensure a harmonised market. However, member states were able to claim an exemption from mutual recognition, under Article 36, on the grounds of public

health. This meant that fortified food legally produced and sold in one country could be banned from another, therefore restricting the free flow of products between member states. Some member states severely restrict food fortification while others impose no restriction (see table 1, above) and this was seen as a problem by European Commission officials intent on harmonising trade regulations.²⁹

Then in 1997, the European Commission indicated its intention to put forward proposals for legislation in 1999-2000. It issued a discussion paper which was designed 'to identify the points that need to be considered and debated prior to any possible proposals for harmonising Community legislation ...'³⁰ The discussion paper indicates that the desired result within the European Commission is deregulation, with national rules described as 'obstacles to intracommunity trade'.

The assumption running through the paper is that dietary deficiencies are common and that the cure is to be found in a liberalisation of fortification rules. There is an acceptance that 'There is less time for selection, purchase and preparation of food at home. There is less time or desire for having full meals and a consequent increase of consumption of snacks and "fast food" products.' This is coupled with the argument that the more sedentary life now enjoyed by the majority of the population may result in reduced food intake and a consequent concern about the adequacy of vitamin and mineral intake.

Harmonisation would not be total, however, as the principle of subsidiarity will play a part, in particular with reference to folic acid. This nutrient is at the centre of discussions concerning its compulsory addition to certain foods. 'These statutory additions have been decided nationally on the basis of national, regional or even local public health considerations which would not be applicable Community wide.'

Although leaning towards trade liberalisation, it does acknowledge that, 'the necessary intakes should in principle be achieved through a varied diet and, where there is a need accepted by the authorities, through compulsory addition as provided for by either Community legislation (e.g. some foods for particular nutritional uses), or national rules (e.g. addition to margarine, etc).'

The discussion paper also suggests an alteration from the current practice of preparing lists of substances permitted to be used for fortification, which it states could be considered unnecessarily restrictive, to 'negative' lists – i.e. lists of substances which could not be used. This changes the onus from establishing that a substance is safe and necessary to having to establish that it is unsafe or unnecessary. The move, says the European Commission, 'would offer greater flexibility to manufacturers for product development and innovation'.

No further moves have been publicly disclosed since the paper was circulated. It is assumed that the issue will re-emerge after the new Commission structure settles into place in late 1999.

3 The need for fortification

3.1 *Nutritional status of European population*

It is difficult to assess micronutrient intakes and status across Europe because there is no single, standardised method for assessment of intake (i.e. protocols for national food surveys differ from country to country). This is further complicated by the fact that *in vivo* measurements would give a more accurate picture of nutritional status, but *in vivo* status is very difficult to measure due to the lack of adequate markers of biochemical function.

However, the available data do point to some fairly consistent trends. Intake data do suggest that in several European countries there are sub-groups of the population who may have low intakes of iron, iodine, and vitamins B₂, B₆ and D. Groups with marginal intakes for specific nutrients have been identified as: elderly people (needing vitamin B₆, vitamin D) and women (iron). Smaller population sub-groups, such as vegetarians, slimmers, smokers, or those on medication that affects nutrient status may also have marginal intakes of some micronutrients.³¹ In some countries there are agreed public health programmes to increase folic acid consumption to reduce the incidence of babies born with neural tube defects.

These data appear to demonstrate that there are a limited number of population sub-groups with marginal intakes of a relatively small number of micronutrients. Given that fortification is not consistent across Europe (and is severely restricted in many European countries) it might be implied that the majority of the European population is meeting most of its requirements from unfortified foods.

The macronutrient composition of the diet in many European countries is a less healthy picture. In the UK we derive about 42% of dietary energy from fat, and about 45% energy from carbohydrate, of which nearly half is from sugars. Current recommendations are that we decrease the contribution to energy intake from fat and from sugars, and increase the amount derived from complex carbohydrates. Such a

shift is expected to contribute to a reduction in chronic diseases (e.g. coronary heart disease), which are a much greater cause of morbidity and mortality in the UK than micronutrient deficiency.

3.2 Contribution of fortification to intakes

For foods that have to be fortified by law there is some evidence showing the value of fortification on overall nutritional status. A study performed in Denmark showed that when mandatory requirements to fortify flour with calcium and vitamin D were removed in 1987, median intakes remained the same, but the percentage of adults not meeting the daily requirement increased from 6 to 22%.³² UK data suggest that withdrawal of vitamin A and D fortification in margarine might result in a similar effect (i.e. an increase in the proportion of the population with inadequate intakes). For thiamin, the theoretical calculation regarding the removal of fortification suggests the number of people with intakes of below 1 mg/day would increase to 36% if it was removed from breakfast cereals, to 43% if it was removed from flour, and 60% if it was removed from both.³³

Fortification is claimed to make a marked contribution to intakes across several European countries, with data from the UK, Ireland, France, Spain and the US showing that ‘those who choose to eat fortified foods have significantly higher micronutrient intake and status compared to those who do not’.³⁴ Breakfast cereals appear to be particularly important in their contribution to micronutrient intakes. However, it should be noted from the outset that this is, in part, due to the fact that they are usually eaten with milk – which makes a significant contribution to the resulting increase in intakes of calcium, zinc and riboflavin.^{35,36} In the United States, breakfast cereals were among the top ten contributors for 18 out of 27 nutrients studied in one survey,³⁷ but they were also contributed excessively high levels of salt.

In the UK, too, breakfast cereals make a significant contribution to the intakes of a number of micronutrients (especially thiamin, riboflavin, vitamin B₆, folic acid, vitamin D and iron).³⁸ It appears that these are not compensated for in subsequent meals if breakfast is missed, suggesting that the contribution of breakfast, and

therefore of fortified breakfast cereals, is of great importance.³⁹ Research also suggests that these improvements in intake are reflected in concomitant improvements in biochemical measurements of nutritional status.⁴⁰ Further to this, one study of the contribution of breakfast cereals to the diets of children demonstrated that appreciable proportions (10-23%) of those who did not consume fortified breakfast cereals had daily intakes that fell below the lower reference nutrient intake for riboflavin, niacin, folate, vitamin B₁₂ and iron (girls).⁴¹ These data suggest that, at least in children, fortification can benefit those with diets of low or marginal nutritional quality.

There are some instances where food fortification may be of public health value to ensure adequate intakes of a particular nutrient. This is most likely in the case of certain nutrients where current official recommendations are in excess of typical dietary intakes.⁴² Folic acid is one such example, following research that demonstrated the role of folic acid in the prevention of neural tube defects. To be effective, a daily intake of 600 micrograms is required – 400 micrograms above the daily requirement for the general population. Since it would be difficult to achieve this level of intake by increasing one's intake of folate rich foods,⁴³ and naturally occurring folate is poorly absorbed,⁴⁴ there is an argument for supplementation. Four years on from the start of the Health Education Authority's campaign, the percentage of women taking folic acid supplements has increased from 2 to 30%.⁴⁵ The greatest increase in supplement usage has been seen in the group at lower risk. This suggests that widespread fortification of staple foods may be the only effective way of adequately increasing folic acid intakes in at risk groups. In fact, some cereals and breads are currently fortified with folic acid, but intakes still remain lower than recommended levels.⁴⁶

However, it is frequently difficult to ensure that fortification reaches its target recipients. One US study demonstrated that fortification tended to increase the intakes of high-consumers (of any given fortified product), whether or not they were in the targeted group, to a greater extent than it increased the intakes of low consumers in the target population.⁴⁷

In contrast, a survey conducted amongst affluent, suburban women in New York State it was found that there was no significant difference in total nutrient intakes in women

with high or low habitual intakes of fortified foods. Also, intakes of vitamins A and C from unfortified foods were higher in women with a low intake of fortified foods.

The authors suggest that possibly women who do not use fortified foods eat more fruit and vegetables, and/or that women who consume lots of fortified foods also consume larger amounts of 'highly processed' foods.⁴⁸

3.3 *Change in direction*

The primary basis for food fortification is no longer aimed to treat or prevent a deficiency disease. Approaches in nutrition have shifted, such that in addition to prevention of deficiency, there is a new focus on 'optimising health'. Examples in terms of fortification include a potential role for calcium in the prevention of osteoporosis, antioxidant vitamins in the prevention of heart disease and cancer, and folate in the prevention of heart disease. The evidence for these nutrients in preventing such diseases is not complete, but manufacturers have been quick to grasp the potential marketing opportunity.⁴⁹

3.4 *Industry views*

In the UK the views of the manufacturers are perhaps somewhat different from those of the medical field when it comes to determining how quickly potential fortification opportunities are realised. Manufacturers would rather see fortification introduced on the basis of new theories immediately, as long as there is no obvious risk to the consumer in doing so.⁵⁰ Others are more cautious, and would prefer that there is evidence for actual benefit before fortification can be approved.⁵¹

Industry appears to believe that the more cautious view imposes a limitation on consumers' rights to 'choice'.⁵² However, as has been demonstrated in the case of antioxidant vitamins, risk to health may not be immediately obvious. In the name of consumer choice, industry is keen to offer fortification before establishing a proven benefit.

The food industry argues that fortification has become an increasingly important source of nutrients following changes in eating patterns over recent years. Decreasing energy intakes, and an increase in the consumption of empty calories mean that fortification is a very efficient and straightforward method of improving the nutritional status of the population.^{53, 54, 55} National nutrition guidelines generally encourage a move towards eating more foods that are naturally nutrient-rich, such as fresh fruits and vegetables, wholegrains, lean meats and fish, but, at a conference hosted by the International Life Sciences Institute (ILSI) – a non-profit but food industry-funded body – it was suggested that if the population of Europe did try to change their diets to comply with such nutrition guidelines, there would be ‘insufficient food for us all to meet these guidelines’.⁵⁶

Industry commentators also argue that health education does not lead to changes in diets, and that fortification is therefore necessary. Using US data, Gussow and Akabas looked at the claim that nutrition education ‘does not work’. They argued that most nutrition ‘education’ – especially that aimed at children – is very effective, but that it promotes *unhealthy* eating habits:

‘By 1991 the budget for the much attenuated Nutrition Education and Training Program (the only federal funds for school nutrition education) was down to \$7.5 million, less than one quarter of what was spent in 1990 on promoting Kellogg’s Sugar Frosted Flakes and less than one hundredth of the \$764 million McDonald’s spent on advertising.’⁵⁷

3.5 Consumer views

Consumers appear keen to retain their right to buy fortified foods – when surveyed 75% felt that fortification should be allowed provided it presents no risk to health.⁵⁸ Another survey showed that approximately half the consumers consulted made an effort to eat vitamin-fortified food.⁵⁹ However, their knowledge of fortification appears to come mainly from advertising, and although individuals are aware of fortification in over 60% of the highly fortified foods they consume, fortification is

the major reason for consumption in less than 20% of cases.⁶⁰ The same study also demonstrated that consumers are happy for products already perceived as nutritious to be fortified, but they do not look favourably on the fortification of less ‘healthy’ foods such as snack foods or soft drinks.

There is a risk that food manufacturers could market fortified, but otherwise relatively unhealthy foods. There are concerns that this could obfuscate healthy eating messages to consumers. Professor Helmut Erbersdobler, addressing the ILSI conference referred to above, noted consumers’ legitimate concerns about the absence of regulation:

‘It is generally accepted that fortification should make a good food better and not be used to polish the image of certain foods with a low nutrient density. To do otherwise would mislead and confuse customers. However, there appears to be no way to regulate this. One can hope that self-regulatory effects will prevent the main excesses.’⁶¹

The present report has found that, sadly, self-regulation appears to be failing and that manufacturers are indeed ‘polishing the image’ of foods of poor nutritional quality – i.e.. products containing high levels of sugars, fats or salt.

4 Survey

4.1 Methods

4.1.1 Product data

Data on fortified products were collected from 6 major food retailers (Tesco, Safeway, Sainsbury, Waitrose, Marks and Spencer, and Co-op) in central southern England during August and September of 1999.

Foods were selected on the basis that they stated that they contained added vitamins or minerals on the package labelling, including the ingredients lists. Foods which only listed vitamins in their ingredients as processing additives (e.g. ascorbic acid described as an antioxidant) were excluded. Products for particular dietary purposes, such as slimming foods, babyfoods or diabetic foods, were also excluded from this survey.

Information was collected about price, pack and serving size, fat, sugar and sodium content, as well as level of fortification.

4.1.2 Companies' views

Leading retailers and manufacturers were contacted in August and September 1999 and asked a series of questions about vitamin and mineral fortification. The supermarkets contacted were Asda, Budgens, Co-operative, Iceland, Marks and Spencer, Safeway, Sainsbury, Somerfield, Tesco and Waitrose. The manufacturers contacted were Danone, Kellogg, Nestle, Proctor & Gamble, Schweppes, SmithKline Beecham, Unilever and United Biscuits.

4.2 Results

The full details of the 262 food products examined are shown in Appendix 1 (fortified products, levels of fortification per 100g, fat, sugar and salt, content); and Appendix 2 (fortified products, levels of fortification per serving).

4.2.1 Food products

Two hundred and sixty two products were identified. These fell into nine broad categories shown in Table 2, below. Sixteen nutrients were claimed as being added to these foods, summarised in Table 3, below.

Table 2. Number of fortified products identified in each food type.

Product type	Number of products identified
Biscuits	17
Bread	5
Cereal bars	13
Breakfast cereals and breakfast bars	115
Hot drinks	8
Soft drinks	63
Milk and soya milk	25
Tinned pasta shapes	12
Confectionery	2
Yogurts	2

Breakfast cereals make up nearly half the total number of products found in the present survey. Soft drinks (including fruit drinks, squashes and sports-type drinks) made up the second largest category of fortified products, followed by milks, biscuits and cereal bars.

Table 3. The distribution of permitted fortifying nutrients across the product categories:

Nutrient	Product groups in which this nutrient found
Vitamin A	Biscuits, breakfast cereals, hot drinks, soft drinks, milks, confectionery, yogurt.
Vitamin B ₁	Biscuits, bread, breakfast cereals, hot drinks, soft drinks, pasta, yogurt
Vitamin B ₂	Biscuits, breakfast cereals, hot drinks, soft drinks, milks, pasta, yogurt
Niacin	Biscuits, bread, breakfast cereals, hot drinks, soft drinks, pasta
Vitamin B ₆	Biscuits, breakfast cereals, hot drinks, soft drinks.
Folic acid	Biscuits, bread, breakfast cereals, hot drinks, soft drinks.
Vitamin B ₁₂	Biscuits, bread, breakfast cereals, hot drinks, soft drinks, milks, pasta, yogurt
Biotin	Breakfast cereals.
Pantothenic acid	Breakfast cereals, hot drinks, soft drinks.
Vitamin C	Biscuits, breakfast cereals, hot drinks, soft drinks, milks, confectionery.
Vitamin D	Biscuits, breakfast cereals, hot drinks, soft drinks, milks.
Vitamin E	Biscuits, breakfast cereals, hot drinks, soft drinks, milks, confectionery.
Calcium	Biscuits, bread, breakfast cereals, hot drinks, soft drinks, milks, yogurt.
Magnesium	Breakfast cereals, hot drinks, soft drinks.
Iron	Biscuits, bread, breakfast cereals, hot drinks, soft drinks, pasta.
Zinc	Biscuits, breakfast cereals, hot drinks, soft drinks.
Iodine	Biscuits, pasta.

As table 3 shows, all nutrients permitted for fortification were found in one product or another, although no single product or product category contained the complete range.

4.2.2 Health criteria

The food products were examined and categorised according to their sugar, fat and salt content. The criteria used to define high and low levels of sugar, fat and salt were

based on the UK government's consumer information material issued by the Ministry of Agriculture, Fisheries and Food in 1996.⁶²

Table 4. Criteria for defining high and low levels of sugar, fat and salt in foods. Amounts are per 100g of the product as bought, or per serving where the serving size is larger.

	Criteria for high level	Criteria for low level
Sugar	10g	2g
Fat	20g	3g
Sodium/salt	500mg sodium, 1.25g salt	100mg sodium, 0.25g salt

4.2.3 Recommended Daily Amounts (RDAs)

Most products give nutrition data in terms of the amount and percentage of recommended daily allowance (RDA). The RDA values used for product labelling in the UK are laid down in an EC directive (Council Directive of 24 September 1990 on nutrition labelling for foodstuffs; 90/496/EEC) and are enforceable under UK law.

We identified a small number of foods that used MAFF guidelines on recommended intakes for children as their reference point. These were on products that were aimed at children, such as Barbie biscuits (Burtons). Perhaps confusingly, the majority of products aimed at children used the standard RDAs generally applied for nutritional claims. The different reference lists (see table 5, below) can make a large difference to the apparent fortification level, for consumers trying to make comparisons between products.

Table 5: Generally applied RDAs and RDAs suggested by MAFF for infants and children⁶³

	General RDAs	Children's RDAs
Vitamin A	800 mcg	363 mcg
Vitamin D	5 mcg	7.4 mg (<i>sic</i>)
Vitamin E	10 mg	2.5 mg
Vitamin C	60 mg	26 mg
Thiamin	1.4 mg	0.3 mg
Riboflavin	1.6 mg	0.5 mg
Niacin	18 mg	5 mg
Vitamin B6	2 mg	0.4 mg
Folacin	200 mcg	55 mcg
Vitamin B12	1 mcg	0.4 mcg
Biotin	0.15 mg	
Pantothenic acid	6 mg	
Calcium	800 mg	481 mg
Phosphorus	800 mg	368 mg
Iron	14 mg	6.7 mg
Magnesium	300 mg	75 mg
Zinc	15 mg	4.8 mg
Iodine	150 mcg	63 mcg

Further details on the products examined for the present report, the amounts of each nutrient and the RDA percentages declared for the products, are shown in Appendices 1 and 2.

4.2.4 Level of fortification

There was considerable variation in the level of fortification when the products were assessed per serving (see Appendix 2). Some products contained well over 100% of the RDA for certain nutrients in a single serving. These include the drinks Red Bull, Lipovitan B³ and Red Devil. These products use slogans such as contains B vitamins

‘to help release energy from protein, fat and carbohydrate’. The rationale for providing over 300% of the RDA for B₁ and B₂ (in Lipovitan B³) and 500% of the RDA for vitamin B₁₂ (in Red Devil) is not given. Other energy drinks provide as little as 17% RDA for the B vitamins (e.g. Lucozade Sport).

Many of the soft drinks provide 100% of the RDA for vitamin C (26 products). The products may be naturally high in vitamin C, but may also have vitamin C added as an antioxidant, to prevent colour fading, or to ensure constant levels across batches.

A comparatively small number of products provide around 50% of the RDA for a number of nutrients. These were mainly breakfast cereals – usually fortified with a range of B vitamins plus iron, and in some cases vitamin C and zinc. More commonly, breakfast cereals are fortified to around 25-30% RDAs per serving. The hot drink Ovaltine Light also provides around 50% of the RDA for the majority of nutrients with which it is fortified.

4.2.5 Fat, sugar and salt levels of fortified foods

Biscuits

Of the 17 fortified products examined, most are either aimed at children or those trying to achieve a low-fat/low-calorie intake. As noted above, some are labelled using a different set of RDAs, such as the Burton Barbie range, which could cause confusion. The ‘Yum-Tums’ range, with the exception of the filled cake bars, provide 20% per serving of the nutrients with which they are fortified (B₂, niacin, B₆, folate, and calcium). Some other brands of biscuits are fortified to similar levels, but with quite a different range of nutrients. Full details are given in the Appendices.

All of the 17 products examined are high in sugars or fat. None of the products had consistently low levels of sugar, fat and salt.

Table 6. Number and percent of biscuit products with high fat, sugar or sodium

	High fat ≥ 20g fat/100g	High sugar ≥ 10g sugar/100g	High salt ≥ 0.5g sodium/100g
Number of products	5	10*	0**
Proportion	29%	100%*	0%**

* 10 products labelled sugar content ** 11 labelled sodium content

Breads

Apart from the fortification of flour products required by law, voluntary fortification of bread products was found for five products (see Appendices 1 and 2 for details). There was some consistency in the range of nutrients with which different brands are fortified, but considerable variation in levels (6-30% per serving). The consistency in range of nutrients added is probably a reflection of legal requirements to fortify bread with certain nutrients, which can be ‘topped up’ for the purposes of marketing a ‘healthier’ option, plus the fact that new guidelines on folate fortification suggest bread as a suitable carrier vehicle.

Two of the five products examined are high in salt. None of the products had consistently low levels of sugar, fat and salt.

Table 7. Number and percent of bread products with high fat, sugar or sodium

	High fat ≥ 20g fat/100g	High sugar ≥ 10g sugar/100g	High salt ≥ 0.5g sodium/100g
Number of products	0	0	2
Proportion	0%	0%	40%

Cereal bars

Fortified cereal bars were found to contain between four and eight added micronutrients. Details are shown in Appendices 1 and 2.

Of the 13 products examined, all are high in sugars. None of the products, therefore, had consistently low levels of sugar, fat and salt.

Table 8. Number and percent of cereal bars with high fat, sugar or sodium

	High fat ≥ 20g fat/100g	High sugar ≥ 10g sugar/100g	High salt ≥ 0.5g sodium/100g
Number of products	0	13	2*
Proportion	0%	100%	18%*

* 11 products labelled salt content

Breakfast Cereals

Of the 115 products in the present survey, the majority are fortified to a level of 25-30% RDA per serving (range 15-66%). There is some inconsistency in the nutrients added to cereals. The majority (99 out of 115 cereals) are fortified with a 'core group' of nutrients (B₁, B₂, niacin, B₆, folate, B₁₂, and iron), but the remaining 20% of products do not offer only these seven nutrients. There is wide variation in terms of other nutrients added beyond the 'core group'. Seventeen products are fortified with vitamin C, eight with vitamin E, 13 with calcium, one with magnesium, and one with biotin. Full details are given in the appendices.

Some cereals that appear to be marketed at specific population groups (such as slimmers or sports people) have different nutrition profiles. However, others do not conform to the 'norm' and yet do not appear to have any distinguishing features, e.g.

Kellogg's Frosties, which are fortified to around 50% RDA levels, but which seem directed at much the same market as many of the same company's other sugar-coated cereals which are fortified to 20-25% RDA levels.

A large proportion of the 115 products examined are high in sugars. None of the products had consistently low levels of sugar, fat and salt.

Table 9. Number and percent of cereal products with high fat, sugar or sodium

	High fat ≥ 20g fat/100g	High sugar ≥ 10g sugar/100g	High salt ≥ 0.5g sodium/100g
Number of products	0	91*	77**
Proportion	0%	81%*	71%**

* 113 products labelled sugar content ** 108 labelled sodium content

Hot drinks

Cocoa and most hot chocolate products are not fortified, but the malted milk drinks are. They are fairly uniform in the level to which they are fortified but not in the range of nutrients added, which varies considerably from product to product. For full details, see Appendices 1 and 2.

Eight products were examined. All provided over 10% sugars 'as bought' and all but one product provided over 10g sugar per serving after dilution. None of the products had consistently low levels of fat, sugar and salt, on a per serving basis after dilution.

Table 10. Number and percent of hot drink products with high fat, sugar or sodium

	High fat ≥ 20g fat/serving	High sugar ≥ 10g sugar/serving	High salt ≥ 0.5g sodium/serving
Number of products	0	7	0
Proportion	0%	88%	0%

Fruit drinks, soft drinks and squashes

Generally fruit drinks were found to provide 100% of the RDA for vitamin C in one serving, whereas soft drinks and squashes provide 17-50% per serving.

Some drinks are additionally fortified with one or more of a wide range of nutrients. Mainly these are fruit products (Five Alive, Sunny Delight, Fruit Burst and Fruit Blast.). However, Robinson's Special 'R' squashes are mostly fortified with some B vitamins and vitamin D. Lucozade and other sports drinks are fortified with a variety of nutrients.

Of 63 products examined, 61 gave sugar levels but none gave fat or sodium levels. Eleven products were low in sugar (they largely relied on artificial sweeteners).

Table 11. Number and percent of drinks with high sugar

	High sugar ≥ 10g sugar/serving
Number of products	50*
Proportion	82%*

* 61 products labelled sugar content

Milks

Dried milks are fortified according to voluntary guidelines with vitamins A and D. Calcium enriched version of most brands of soya milk are also available – an example of substitution rather than fortification.

Twenty five products were examined. As the main public health concern is with non-milk extrinsic sugars (NME sugars) the presence of sugar in these milk products was not evaluated. The addition of sugar to soya milk products could be argued as an example of added NME sugars, but this was not pursued in the present survey. Five products – all of them skimmed milk – were low in both fat and salt levels.

Table 12. Number and percent of milk products with high fat or sodium

	High fat ≥ 20g fat/serving	High salt ≥ 0.5g sodium/serving
Number of products	0	1*
Proportion	0%	8%*

* 13 products labelled salt content

Tinned pasta

All the fortified pasta products are aimed at children (Barney, Barbie, Rugrats etc). Few if any of the non-character branded tinned pasta products are fortified. Where products are fortified, it is to a consistent level (around one sixth of RDA) and across a consistent range of nutrients.

Twelve products were examined. The majority were high in sugar on a per serving basis, and all were high in salt. None, therefore, were consistently low in fat and sugar and salt.

Table 13. Number and percent of pasta products with high fat, sugar or sodium

	High fat ≥ 20g fat/serving	High sugar ≥ 10g sugar/serving	High salt ≥ 0.5g sodium/serving
Number of products	0	7	12
Proportion	0%	58%	100%

Confectionery

Two brands of fortified confectionery were identified, although a recent report from Datamonitor⁶⁴ suggests this is an area likely to expand significantly in coming months.

Neither product labelled fat content. Only one product labelled sugar content, although it can be assumed that both products were high in sugar.

Table 14. Number and percent of confectionery products with high fat or sugar

	High fat ≥ 20g fat/100g	High sugar ≥ 10g sugar/100g
Number of products	0*	1*
Proportion	0%*	100%*

* One product labelled sugar content and one labelled fat content.

Yogurt

Two brands of fortified yogurt were identified. One is aimed specifically at children. The nutrients with which they are fortified, and the level of fortification is quite different between the two products (see Appendices). Neither of the products declared their salt content. Both products were high in sugar.

Table 15. Number and percent of yogurt products with high fat, sugar or sodium

	High fat ≥ 20g fat/serving	High sugar ≥ 10g sugar/serving
Number of products	0	2
Proportion	0%	100%

4.2.5.1 Summary of fat, sugar and salt levels in fortified products

A large proportion of the fortified products examined in this study are high in fat, sugar or sodium. Tables giving figures for each food category are shown above.

Fats

Of the 262 products examined, 54 did not declare fat content on the labels. Of the remaining 208 products, 5 (2%) were high in fats.

Sugars

For the 25 milk drinks, sugar information was not examined on the grounds that the sugars were generally considered to be milk sugars or equivalent sugars in milk substitutes, and these are largely exempted from public health recommendations concerning dietary intake. A further 36 products did not declare sugar content on the labels. Of the remaining 201 products, 181 (90%) were high in sugars.

Salt

Of the 262 products, 88 did not declare sodium or salt levels on the label. Of the remaining 174 products, 98 (56%) were high in salt.

Table 16. Products with high fat, sugar or sodium

	fat	sugar	sodium
Number examined	208	201	174
Proportion found high	2%	90%	56%

Overall

Of the 262 products examined, 200 products (76%) were deemed to be too high in either fat or sugar or salt in one or more combination. As many of the products examined failed to declare one or more of the key nutrients of interest, the actual proportion may be significantly higher.

Low fat, sugar and salt

Criteria for considering a product to be low in fat, sugar and salt are given in table 4. Of the 262 products in the present survey, 91 failed to give sufficient information to establish that the product was consistently low in fat and sugar and salt. Of the remaining 171 products, only 5 products (3%, all of them skimmed milk products) could be considered consistently low in fat, low in salt, and low in non-milk extrinsic sugars.

Table 17. Assessment of products consistently low in fat and sugar and salt

Number examined	171
Proportion found low	3%

4.2.6 Marketing and claims

Nutrient enrichment is usually indicated on packaging, and often reinforced in slogans declaring the benefits of a product. In some cases this is a very simple statement: ‘fortified with vitamins’ or ‘rich in vitamin C’. Other manufacturers use more emotive language: ‘6 essential vitamins and iron in every bowlful’, ‘body balanced nutrition’, ‘8 vitamins and iron to keep you and your family healthy’, and ‘with triple B-complex vitamins to help release energy from protein, fat and carbohydrate’.

Manufacturers also made statements or claims about their product that may be considered nutritionally misleading. For example, Jacob’s Yum-Tums range carry the statement ‘nutritious snacks’. These products range in sugar content from 30 to 50 grams of sugar per 100g, and from 7 to 44% energy from fat (mean 28%). Similarly, Weetos carry the statement ‘a delicious treat for kids which is good for them too’. Weetos contain over 35g sugar per 100g, in addition to the range of vitamins and minerals with which they have been fortified.

Some vitamin-enriched products (such as cereal bars) are geared towards a sector of the population who feel some health concern but do not have time for full meals. The descriptions on the packets suggest that such foods may be nutritionally equivalent to the food they replace – for example, Kellogg’s NutriGrain bars declare that they have added calcium – ‘as much calcium as a quarter of a pint of milk’. However, cereal bars tend to be higher in fat than breakfast cereals, and are also high in sugar.

Table 18. Examples of claims made for added nutrients

	Claim	Comment
Onken: Onkybloc yogurt	<i>With added vitamins and calcium</i>	Only two vitamins added
Taisho: Lipovitan B3	<i>With triple B complex vitamins to help release energy from protein, fat and carbohydrate</i>	Questionable claim 'to help release energy' but up to 300% RDA supplied
SmithKline Beecham: Solstis	<i>Rich in vital energy releasing B vitamins</i>	Less than 50% RDA supplied
SmithKline Beecham: Lucozade Sport	<i>With added energy-releasing vitamins</i>	Less than 20% RDA supplied
P&G: Sunny delight	<i>Vitamin A, B1, B6 and C enriched citrus beverage</i>	Added vitamins differ between products in range
Novartis: Ovaltine Light	<i>A good source of iron. Rich in vitamins and minerals essential when dieting</i>	Between 25 and 50% RDA supplied
SmithKline Beecham: Horlicks Light Chocolate	<i>Fortified with calcium and balanced amounts of 10 essential vitamins</i>	20% RDA supplied
Weetabix: Readybrek with chocolate	<i>Rich in calcium, vitamins and iron</i>	One third RDA supplied
Seven Day: Sensation Honey and Pecan	<i>A good supply of 8 vitamins and iron</i>	17-25% RDA supplied
Nestle: Nesquick cereal	<i>8 vitamins and iron to help keep you and your family healthy</i>	Includes 'Vitamin C for maintaining healthy bones'
Kellogg's: Optima Fruit and Fibre	<i>Contains opti-B vitamins. 8 essential B vitamins and iron in every bowlful</i>	26% RDA supplied
Kellogg: Nutri Grain bar	<i>Contains as much calcium as quarter of a pint of nutritious milk</i>	Product is 31% sugar
Kellogg: Healthwise Bran flakes	<i>Now with body balanced nutrition</i>	Nine vitamins and one mineral added, with varied RDA levels supplied
Jacobs (Danone); Yum Tums Iced Gem biscuits	<i>Nutritious snacks. Jacobs nutritious snacks symbol guarantees you snacking choices that are tasty and wholesome..</i>	Promotes a high-sugar product as suitable for between-meal consumption, contrary to government advice.
Jacobs (Danone): Vitalinea range	<i>90% Fat Free. For a healthy diet it is important to balance snacks... Our nutritionists suggest (snack including Vitalinea product)</i>	Products are 30-40% sugar and encourage between-meal consumption, contrary to government advice. None are low fat
Burtons: Barbie biscuits	<i>With added vitamins and iron</i>	Uses children's RDAs

4.2.7 Results of survey of manufacturers and supermarkets

Of the ten supermarkets contacted, five replied.

ASDA are ‘currently developing a policy on the fortification of ASDA foods ensuring that fortified foods are always beneficial to their target consumer and of absolutely no disadvantage to others’.

The choice of products is ‘Based on nutrient deficiency in certain groups of the population and where it involves nutrients which would benefit all’. On the issue of bioavailability, ASDA acknowledge that ‘The bioavailability of a nutrient varies and is something we are looking at but the folic acid in bread has a much higher bioavailability than folic acid in fruit and vegetables for instance.’

On the broader subject of the importance of fortification to marketing and sales, ASDA said, ‘It’s variable, dependent on how much information consumers want and where there is a dietary requirement, e.g. some people will want enriched foods but will require information about how much they need and the various benefits. We do not believe that unhealthy foods should be fortified on the basis of marketing. It’s about giving customers choice.’

Co-op (CWS) described itself as a ‘Responsible Retailer,’ and as such, ‘has carefully considered the fortification of foods and the development of labelling and claims surrounding them. Any claims are based upon the target consumer for the product and are appropriate to the dietary needs of those customers.

‘Selection of products is based upon consumers’ expectations and in the light of recommendations from Government.

‘Levels are based upon RDAs for the target consumer, reflecting legislation and respected guidance from independent bodies such as COMA. Recommended levels differ with different nutrients and different consumer groups.

‘We are aware that the chemical form involved may affect the bioavailability of vitamins and minerals. Working with product suppliers, we aim to ensure that the form used provides the most effective and appropriate means of fortification, recognising that the measurement of this can be somewhat imprecise. Where sources are prescribed by regulation, these would certainly be used.

‘Whilst we are aware of market developments in the field of food fortification, it is an area where we are continuing to develop policy and range. At present, the number of our products involved is extremely limited, primarily breakfast cereals, as such it is not a significant area of marketing development.’

Iceland responded by listing the four Own Brand products that are fortified. These were all breakfast cereals.

‘Our policy,’ explained Iceland, ‘is only to fortify “natural” or “primary processed” products that would be part of an everyday regular balanced diet. The level of vitamins and minerals added would be assessed on an individual product basis’

‘We believe that it is common practice for cereals to be fortified with vitamins and minerals, thus it would be difficult to assess whether these nutrients increase customer sales. However, our decision to fortify these products was led by customer requests for Iceland to do so.’

Marks & Spencer responded to the request for information with a statement.

‘Marks & Spencer believes in taking a responsible approach and only fortifies a small number of products which form part of the staple diet.

‘These include a number of our breakfast cereals, where it is common industry practice to do so, some milk lines, margarine, and bread products where there may have been loss of nutritional value during processing. We also have a range of drinks designed to replace vitamins and minerals lost during exercise.

‘The decision to fortify, and the fortification levels, are taken following consultation with independent recognised nutritional experts, and vitamin/mineral addition is added in the most appropriate way to ensure safety and bio-availability.

‘We believe this to be a growing business in the UK food and drink industry but at present it is of little importance to the overall marketing and sales of St Michael own brand foods.’

Lastly, **Safeway** consider ‘that the fortification of selected own label products can provide a useful route for nutrient enhancement across a number of population groups. These include toddlers & young children, older people, ethnic groups and other population groups as appropriate. Fortification of certain products that are consumed by specific population groups can be beneficial in helping to construct a balanced diet.

‘Products for fortification are reviewed on an individual basis. In particular consideration is given to how specific products may fit into an individuals diet and to whom products are targeted at. A view is also taken regarding the relative contribution that the product(s) may make in relation to the overall nutrient content of the diet when consumed alongside other products.’

Safeway conclude, ‘Fortification of products can make products more attractive to some customers, however the primary motivation for consumers initial purchase and repeat sales is the taste and quality of the food product not fortification.’

Of the eight food manufacturers contacted, only two responses were received, from Kellogg and Nestle.

Kellogg stated that ‘We fortify our products with vitamins and minerals to provide people with a choice of nutrient-rich foods to help them meet their dietary needs and requirements. We believe that fortification, together with nutrition education, can play an important role in helping people to improve their diets.’

‘Fortification of foods is becoming increasingly important as people’s energy intakes decline due to changing patterns of work and lifestyle. Research conducted in the UK and Europe has shown that some people, in particular groups such as young children, adolescents, women and the elderly, are not achieving the recommended intakes for certain essential nutrients.’

‘We will continue to develop our products and enhance their nutritional composition, in the light of ongoing scientific research, ever-evolving consumer needs, recommendations from health professionals and regulatory guidelines.’

Nestle’s policy is that, ‘Each product to be fortified is specially selected on a case by case basis.’

Fortification should, ‘provide vitamins/minerals that are suitable for the product’s market i.e. required by the sort of people the product is purchased by. It must provide adequate but not too much, in an amount you can reasonably consume in a day.’

The level of fortification, the company said, is considered on a case by case basis taking into account –

- Levels of nutrients already in product
- Target market and their needs
- Vitamin/mineral requirements and knowledge of those that can be consumed in excess
- Portion sizes and amounts commonly consumed in a day.

Nestle’s vitamins/minerals are ‘added as salts for minerals or as the vitamins themselves. They are selected to appropriately enhance the nutrient content on a case by case basis. This is essential as processing and storage conditions can have an effect on the availability of nutrients and this needs to be taken into consideration. The chemical forms differ according to the product as the form needs to suit the composition of the product.’

‘Fortification plays a very specific role in products – for us it must complement the product and provide real benefit in nutritional terms for the relevant market.

Fortification practices can be highlighted and communicated in a marketing sense, to inform the purchaser about the benefits and role of particular product and to educate them about the nutrition.'

5 Discussion

5.1 Risk of overdose/metabolic imbalance

As the industry-funded British Nutrition Foundation has acknowledged, ‘random and uncontrolled fortification could result in excessive, inappropriately targeted and potentially harmful intakes of micronutrients’.⁶⁵

The potential for excessive doses that could either be toxic or create a metabolic imbalance has to be addressed in a system that allows virtually unregulated nutrient supplementation of foodstuffs. Some commentators take the view that although the addition of nutrients to foods may be unhelpful, it is very unlikely to be deleterious in terms of direct health consequences, because the industry adheres to voluntary guidelines relating to safe levels of intake.⁶⁶ In fact, although the toxic level for most nutrients is very high, for some nutrients there is a narrower safety margin (vitamins A and D, folic acid, selenium, iron, zinc, copper and phosphorus). Excess intakes of vitamin D can cause hypercalcaemia, high folate intakes can mask vitamin B₁₂ deficiency, and high vitamin A intakes in pregnancy are potentially teratogenic.^{67,68,69} Excessive fortification with vitamin D to the point of overdose (with some fatalities) has occurred in the past in the UK, when infant milk, cereal, and cod liver oil were all fortified.⁷⁰ Excessive iron may also pose problems: iron added to a broad range of products may help to meet the needs of younger women, but may risk over exposure in men and older women.⁷¹

Although quantities of nutrients added to foods are regarded by manufacturers as well within safe limits, it is difficult to assess the impact of food fortification combined with self-supplementation. In the US, micronutrient supplements are consumed by almost half the population,⁷² and in the UK over £300 million is spent annually on dietary supplements, indicating their use is widespread here too.⁷³ Non-supplement micronutrient intakes are higher in those who take supplements than those who don’t, i.e. they are taken mainly by those who are least in need of them.⁷⁴ The implication of this for food fortification is that although fortification alone may not result in toxic

levels of intake, an uncontrolled combination of fortification and supplement usage might.

There is also the possibility that fortification, whilst not creating a toxic level of one nutrient, may cause a metabolic imbalance. For example, nutrient imbalance may occur following an 'adverse shift in the ratio of n-3 to n-6 fatty acids, or in the balance of minerals which share a similar mechanism of absorption'.⁷⁵

Some kind of regulation therefore appears essential, as although the risks may be limited, they clearly exist. In 1991 the Department of Health and the Ministry of Agriculture Fisheries and Food suggested creating an upper level for fortification (such as one-tenth the level of an undesirable dose), but legislation in this area is dependent on the EC harmonisation process.

Ironically, although there are potential risks of overdose, the risk may be minimised if, as the British Nutrition Foundation have suggested, '...in practice, the amount added is usually the minimum required in order to make a nutrition claim'.⁷⁶

5.2 Complications for health educators

Although early fortification practices were the result of clearly identified nutritional needs, much fortification today appears to be market driven.^{77,78} Some nutritionists are highly sceptical about industry motivation for fortification, and feel that it may be working against nutrition education initiatives. There are three main areas in which fortification may confound nutrition education efforts.

Firstly, adding a nutrient to a food that would not normally contain significant amounts of it, then labelling it as a rich source may lead people to believe that this food is *naturally* a rich source. The public may generalise this to all brands of that type of food. Alternatively they may see the fortified food as indistinguishable from the food which would naturally be a source of that nutrient – but the natural source may well be lower in fat or sugar, or have a better overall micronutrient profile.^{79, 80}

Secondly, adding nutrients to foods which we are recommended to decrease our consumption of (such as confectionery or biscuits) may give the message that these foods have been made ‘healthy’ by the addition of vitamins. This could lead consumers to believe that it is acceptable to eat them in a larger quantity, and without consideration of their macronutrient contribution to the diet

Thirdly, it may be unhelpful that products are marketed to imply particular (or general) health benefits, since this could convey the message that particular products – rather than food groups – are important to health. Product related health claims tend to reinforce the idea of ‘good foods’ and ‘bad foods’, which is not consistent with current health education messages.⁸¹

Furthermore, the contradictory or confusing messages may lead people to reject all nutritional advice as there appear to be no clear dietary guidelines. Changing to a healthier eating pattern is difficult enough, but when the ‘experts’ cannot agree on what constitutes a healthy diet this can be especially de-motivating, as it can give the impression that whatever the consumer does they will be ‘wrong’.

5.3 ‘Junk’ with added nutrients

Current fortification practice has also been criticised on the grounds that it is simply a way of adding apparent value to cheap ingredients. This may enable manufacturers to sell such products as ‘nutritious’ foods, although their macronutrient composition would mean that they are in the group of foods which we are advised to eat less of.

Gussow and Akabas are particularly vocal in their condemnation of the food industry:

‘...these probably unnecessary nutrient additions have had desirable commercial consequences. After manufacturers were allowed to promote fortification on product labels a growing assortment of red, orange, pink and purple children’s cereals whose primary ingredient was sugar were made “nutritious” with the addition of less than a penny’s worth of several “important nutrients”. Markets were also created for juice drinks made of water, sugar,

juice flavour and vitamin C... products that could be promoted as nutritious because they contained [added] nutrients.

‘As nutritionists have come to understand, most of the nation’s nutrition problems over the past 20 years were not, and are not, related to shortages of vitamins and minerals, but to the consumption of too much energy, fat, refined carbohydrate and salt, and too little complex carbohydrate and fiber.’⁸²

Others are less overt in their criticism, but the message remains the same:

‘The fortification of foodstuffs with micronutrients alone does not help to achieve an appropriate diet. Too much focus on vitamin intake could distract consumers from more important problems related to diets rich in fats and refined products.’⁸³

Consumers can easily be led away from key health education messages, towards believing that high fat/sugar/salt foods are healthy or nutritionally beneficial because they are fortified with vitamins – when in fact there are alternative sources of these nutrients, which are not potentially adverse to health in the way that a high fat/sugar/salt product may be.

Our survey showed that three-quarters of the fortified products identified were high in either fat, sugar or salt, which makes it very likely that consumers are being misled in the ways described above.

5.4 Marketing fortified products

Manufacturers remain keen to promote fortified products as part of a healthy diet. One brand of fortified biscuits (Vitalinea from Jacobs/Danone) had a panel that described the biscuits as being ‘the nutritious snack choice’. The product, with 44% sugar content, is clearly one that falls into the category of sweet and fatty foods which the Department of Health guidelines recommend should be eaten less frequently, and preferably not between meals. Yet the biscuits are promoted as being suitable for

between-meal consumption, and they are listed as a nutritious snack in a panel on the packaging, headed ‘Our nutritionists suggest:’.

Table 19. Vitalinea product compared with hot cross bun

Food	Weight	Sugar (g)	Fat (g)	kcal
1 serving of Vitalinea Chocomousse	44g	20.4	4.2	168
1 currant bun	50g	11.8	3.4	156

This comparison shows that the low-fat product recommended by the nutritionists at Jacobs is much higher in sugar than a readily available alternative. This marketing is an example of how ‘paradox concepts’ are generated⁸⁴ by giving conflicting information to the consumer – in this case sugar-filled biscuits are marketed as healthy but contradict healthy eating advice to reduce our intake of fatty and sugary foods. Consumers may find it difficult to differentiate between the advice of a company nutritionist and the advice of another authority disseminating health education messages.

5.5 Marketing aimed at children/parents

How does a company persuade a parent that it should purchase one sugar-rich breakfast cereal over another? In fact, how can they persuade the parent to buy a sugar rich breakfast cereal in the first place, especially when put in the context of health and nutrition education? The answer is marketing. As we suggested earlier, expenditure on nutrition education encouraging healthier diets is only a small proportion of the total expenditure on promoting foods to children, when one takes company advertising into account.⁸⁵

We looked at each product and made judged whether it was marketed at children, based on the use of cartoon images, promotional tie-ins and general appearance. We then examined these children-aimed foods for their fat, sugar and salt content, using the same criteria used in the main study (see table 4, above). We identified 80 products which appeared to be especially targeted to children. Of these 80 products,

66 (83%) were high in fat, sugar or salt, and a further four products (5%) gave insufficient data to judge their quality, but were considered likely to be high in sugar.

Perhaps the most remarkable record is held by Nestle. Of the eleven breakfast cereals surveyed, eight were considered to be especially aimed at children – and of these eight, all had high levels of sugar and half had high levels of salt.

The targeting of children was backed up in many cases with statements promoting the product's role in a healthy diet, in order, presumably, to reassure the parents making the purchase. For example, Kellogg's Frosties are 'Supercharged with extra B₁, Niacin & B₆' and that 'Kellogg's Frosties contains six essential vitamins and iron . which all help your body in different ways. A look at the table below will help you find out how each vitamin helps you... and your body.' The information supplied is essentially accurate, but does not indicate whether there is any actual need for the additional nutrients, or that the product's second ingredient is sugar, amounting to 38g per 100g.

5.6 Other target groups

Children are not the only targets of the marketers. One of the other groups most often at the receiving end of the advertisers attention is people trying to lose weight. Fortified foods are offered as an alternative way to reduce the intake of food while maintaining a sufficient intake of nutrients. Products such as Kellogg's Special K are marketed as something to be consumed as part of a 'calorie controlled diet'. Yet Special K has just as many calories per 100g as sugar coated Frosties – i.e. 370 kcalories per 100g. Similarly, the Vitalinea range of biscuits from Jacobs are marketed for their ' % Fat Free' and their contribution to a healthy diet yet, as we showed above, they offer no advantage over easily available alternative products.

5.7 Separation of foods from nutrients

Some experts have questioned the health benefits of the current explosion in food fortification. Over recent years there has been much interest in the scientific community about the possibility that certain vitamins with antioxidant properties may confer important health benefits, such as a reduction in risk of cancer and heart disease.

These ideas have been seized upon by food manufacturers who are now fortifying a wide range of foods with antioxidant nutrients (see Appendices 1 and 2). However, further investigations have shown that the picture is far less clear. Major randomised, controlled, prospective studies of antioxidant nutrient supplementation have not been able to reproduce the protective benefits of a diet rich in fruits and vegetables, nor have they been able to show a decrease in the incidence of chronic diseases.⁸⁶ It now appears that these specific nutrients are just a tiny fraction of the active compounds in fruit and vegetables, and it is likely that the overall combination exerts the beneficial effect. Thus: ‘In fruit, the contribution of vitamin C to the total antioxidant potential is approximately 15%. The remainder can be attributed to secondary plant substances. Indeed, pure fruit juices may be more wholesome than lemonades fortified with vitamin C.’⁸⁷

It appears that isolating these specific nutrients and supplementing with them is less likely to achieve health benefit than eating foods naturally rich in a variety of nutrients. This can be generalised to other nutrients too – calcium is known to be important in bone health, but excessive emphasis on calcium supplemented foods can distract from the wider picture, as it is important for people to consider the role of exercise, hormone status and other relevant nutrients.

Vitamin and mineral supplementation can be a useful mechanism for improving intakes of a particular nutrient where otherwise a population simply would not be able to achieve an adequate intake (as in the case of folic acid). However, ‘patching up’ the nation’s diet with discrete nutrients may create problems of its own. One

commentator points out: ‘Although it may be beneficial that consumption of cereals leads to increased intakes of ‘problem nutrients’ such as folate or iron, the fact that not enough folate or iron dense foods are being consumed may be problematic in terms of other potentially beneficial nutrients or dietary constituents. The Committee on Recommended Dietary Allowances maintains that recommended nutrient intakes should be consumed as part of a normal diet composed of a variety of food groups rather than supplementation or fortification.’⁸⁸

5.8 Labelling

The vast majority of manufacturers use the European Commission values for RDA levels for labelling purposes. However, several children’s biscuit products use the MAFF guidelines for children’s RDA levels. This results in a difficulty in comparing products.

Several products were adding vitamins but making little or no special claim on the label, and as a result no nutritional panel was required by law nor was one printed on the product. Persons wishing to estimate their total intake of nutrients from fortified sources would be unable to do so using these products.

5.9 Summary of consumer concerns

The present report found evidence for poor fortification practices in the UK, whereby fortified foods are likely to be ones which are high in sugars, fat or salt. The international governing body of food standards, Codex Alimentarius, recommends that ‘Addition of essential nutrients to foods should not be used to mislead or deceive the consumer as to the nutritional merit of the food.’ Yet these seem to be repeatedly over-ridden at the national level.

The EU is considering harmonisation of fortification laws. If the harmonisation is towards de-regulation, rather than a high level of regulation across Europe, then the bad practices that are emerging in the UK could become more widespread in Europe.

The Food Commission would like to see the EU take the issue of fortification seriously and consider putting it under stricter controls. There may be specific public health needs that are best met through fortification of the general food supply, but we believe that the argument in favour of doing this should be made on a case-by-case basis.

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Appendix 1:

List of 262 products examined

with details of their nutrient content per 100g

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E kCal	Sugar g	%E	Fat g	%E	Na g
Barbie Bite Size Biscuits	Burtons	140	0.69	28	480			20.8	39	
Barbie Chocolate Biscuit Bars	Burtons	125	0.46	25	519			28.7	50	
Barbie Strawberry Biscuits	Burtons	150	0.26	25	495			22.5	41	
Jammie Dodgers	Burtons	150	0.49	38	444			16.6	34	
Elmo's Dominoes	Foxes	125	0.65	19	515			26.9	47	0.30
Jammy Yum Yums	Jacobs	150	0.55	30	391	29.8	29	15.3	35	0.10
Vitalinea Chocomousse	Jacobs	175	0.79	44	336	44.3	49	8.9	24	0.10
Vitalinea Jam and Cream Biscuits	Jacobs	150	0.69	30	359	34.2	36	14.0	35	0.10
Vitalinea Lemon Crunch Biscuits	Jacobs	85	0.46	29	415	40.7	37	8.0	17	0.20
Vitalinea Summer Fruit Shorties	Jacobs	200	0.36	29	431	15.1	13	12.2	25	0.40
Yum Tums Choc Gems	Jacobs	180	0.99	30	486	33.2	26	23.5	44	0.30
Yum Tums Filled Cake Bars	Jacobs	150	0.99	30	405			16.0	36	
Yum Tums Happy Faces	Jacobs		0.59	30	459	35.9	29	17.0	33	0.30
Yum Tums Iced Gems	Jacobs	180	0.99	30	390	50.4	48	3.1	7	0.20
Yum Tums Iced Licky Biscuits	Jacobs	200	1.49	20	411			6.2	14	
Clown Biscuits	Tesco	200	0.99	25	411	23.7	22	9.7	21	0.20
Reduced Fat Crispy Orange Bars	Tesco	110	0.67	22	431	48.0	42	12.7	27	0.20
Mighty White	Allied Bakeries	800	0.63	40	224	3.1	5	1.5	6	0.50
Softgrain Bread	Tesco	800	0.39	36	236	3.1	5	2.4	9	0.50
Healthier White Sliced Bread	Waitrose	800	0.63	40	202	2.7	5	1.9	8	0.40
Healthy Loaf (white)	Warburtons	800	0.77	38	219	2.6	4	1.7	7	0.40
Healthy Loaf (wholemeal)	Warburtons	800	0.77	38	222	3.3	6	2.9	12	0.40

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Barbie Bite Size Biscuits	Burtons	With added vitamins and iron.			0.2	70	0.4	72	3.6
Barbie Chocolate Biscuit Bars	Burtons	With added vitamins and iron.			0.2	80	0.4	80	4.0
Barbie Strawberry Biscuits	Burtons	With added vitamins and iron.			0.2	80	0.4	80	4.0
Jammie Dodgers	Burtons	With added vitamins and iron.			0.2	53	0.3	54	2.7
Elmo's Dominoes	Foxes	Enriched with vitamins, calcium and iron.			0.3		0.4		0.4
Jammy Yum Yums	Jacobs	Nutritious snacks					1.1	67	12.1
Vitalinea Chocomousse	Jacobs	With added vitamins and minerals					0.8	50	9.0
Vitalinea Jam and Cream Biscuits	Jacobs	With added vitamins and minerals					1.1	67	12.1
Vitalinea Lemon Crunch Biscuits	Jacobs	With added vitamins			0.4	25			4.5
Vitalinea Summer Fruit Shorties	Jacobs	With added vitamins and minerals					1.1	67	12.1
Yum Tums Choc Gems	Jacobs	Nutritious snacks. Added vitamins and minerals					1.1	67	12.1
Yum Tums Filled Cake Bars	Jacobs	Nutritious snacks					0.3	20	
Yum Tums Happy Faces	Jacobs	Nutritious snacks					1.1	67	12.0
Yum Tums Iced Gems	Jacobs	Nutritious snacks. Added vitamins and minerals					1.1	67	12.1
Yum Tums Iced Licky Biscuits	Jacobs	Nutritious snacks. Vitamin C. Jacobs nutritious snacks symbol guarantees you snacking choices that are tasty and wholesome. These healthy snacks provide a better balance of nutrients for a child's health.							
Clown Biscuits	Tesco	A vitamin enriched biscuit			1.6	114	0.7	44	3.7
Reduced Fat Crispy Orange Bars	Tesco	Vitamin enriched	727	91					
Mighty White	Allied Bakeries	Enriched with vitamins			0.6	42			7.1
Softgrain Bread	Tesco	Fortified with folic acid, enriched with 4 vitamins			1.1	79			12.6
Healthier White Sliced Bread	Waitrose	Increased vitamins and fibre and less sodium than Waitrose white sliced bread			1.1	79			12.6
Healthy Loaf (white)	Warburtons	Calcium and vitamins			0.2	17			3.1
Healthy Loaf (wholemeal)	Warburtons	Calcium and vitamins			0.2	17			3.1

Product name	Manufacturer	%RDA	B6		Folate		B12		Pantoth	
			mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
Barbie Bite Size Biscuits	Burtons	71	0.3	73	39	71	0.3	73		
Barbie Chocolate Biscuit Bars	Burtons	80	0.3	80	44	80	0.3	80		
Barbie Strawberry Biscuits	Burtons	80	0.3	80	44	80	0.3	80		
Jammie Dodgers	Burtons	53	0.2	53	29	53	0.2	53		
Elmo's Dominoes	Foxes		0.4		9		0.4			
Jammy Yum Yums	Jacobs	67	1.3	67	134	67				
Vitalinea Chocomousse	Jacobs	50			100	50				
Vitalinea Jam and Cream Biscuits	Jacobs	67	1.3	67	134	67				
Vitalinea Lemon Crunch Biscuits	Jacobs	25								
Vitalinea Summer Fruit Shorties	Jacobs	67	1.3	67	134	67				
Yum Tums Choc Gems	Jacobs	67	1.3	67	134	67				
Yum Tums Filled Cake Bars	Jacobs									
Yum Tums Happy Faces	Jacobs	67	1.3	67	133	67				
Yum Tums Iced Gems	Jacobs	67	1.3	67	134	67				
Yum Tums Iced Licky Biscuits	Jacobs									
Clown Biscuits	Tesco	21			110	55				
Reduced Fat Crispy Orange Bars	Tesco									
Mighty White	Allied Bakeries	39			118	59	1.0	100		
Softgrain Bread	Tesco	70			123	62	1.1	110		
Healthier White Sliced Bread	Waitrose	70			123	62	1.1	110		
Healthy Loaf (white)	Warburtons	17			34	17	0.2	17		
Healthy Loaf (wholemeal)	Warburtons	17			34	17	0.2	17		

Product name	Manufacturer	C		D		E		Ca		Mg		Fe		Zn		Misc		
		mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	Subst	wt	%RDA
Barbie Bite Size Biscuits	Burtens	19	71									4.8	71					
Barbie Chocolate Biscuit Bars	Burtens	21	80									5.4	80					
Barbie Strawberry Biscuits	Burtens	21	80									5.4	80					
Jammie Dodgers	Burtens											3.6	53					
Elmo's Dominoes	Foxes							107				4.5				iodine	31.00	
Jammy Yum Yums	Jacobs							536	67			9.4	67					
Vitalinea Chocomousse	Jacobs							400	50			7.0	50					
Vitalinea Jam and Cream Biscuits	Jacobs							536	67			9.4	67					
Vitalinea Lemon Crunch Biscuits	Jacobs					2.5	25											
Vitalinea Summer Fruit Shorties	Jacobs							536	67			9.4	67					
Yum Tums Choc Gems	Jacobs							556	67			9.4		67.0				
Yum Tums Filled Cake Bars	Jacobs					2.0	20											
Yum Tums Happy Faces	Jacobs							533	67									
Yum Tums Iced Gems	Jacobs							556	67			9.4		67.0				
Yum Tums Iced Licky Biscuits	Jacobs	25	40															
Clown Biscuits	Tesco	32	53	11.0	220													
Reduced Fat Crispy Orange Bars	Tesco	55	92			9.0	50											
Mighty White	Allied Bakeries																	
Softgrain Bread	Tesco																	
Healthier White Sliced Bread	Waitrose																	
Healthy Loaf (white)	Warburtons							400	50			2.4	17					
Healthy Loaf (wholemeal)	Warburtons							400	50			2.4	17					

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E kCal	Sugar g	%E	Fat g	%E	Na g
New Yorker B/fast Bar	Hero	150	1.29	25	440	27.0	23	16.0	33	0.30
Chewy M/mallow Squares	Kelloggs	22	0.29	22						
Chocolate Squares R/Krispie	Kelloggs	22	0.29	22						
Coco Pops Cereal + Milk Bar	Kelloggs	20	0.25	20	470	50.0	40	16.0	31	0.40
Frosties Cereal and Milk Bar	Kelloggs	27	25	27	470	37.0	30	15.0	29	
Nutrigrain Strawberry	Kelloggs	37	0.29	37	360	35.0	35	8.0	20	0.30
Nutrigrain Cherry	Kelloggs	37	0.29	37	360	31.0	32	8.0	20	0.30
Nutrigrain Blueberry	Kelloggs	37	0.29	37	360	31.0	32	8.0	20	0.30
Nutrigrain Apple	Kelloggs	37	0.29	37	360	31.0	32	8.0	20	0.30
Pop Tarts	Kelloggs	300	1.25	50	388	35.0	34	10.3	24	0.38
Smacks Cereal and Milk Bar	Kelloggs	23	25	23	470	58.0	46	16.0	31	
Harvest Bar (choc chip)	Quaker	110	0.89	22	426	30.0	26	16.0	34	0.30
Harvest Bar (white choc chip)	Quaker	110	0.89	22	426	30.0	26	15.0	32	0.30
Dennis Chocolate Scoffers	'Beano'	275	1.09	30	382	35.3	35	3.1	7	0.30
Healthwise Bran flakes	Kelloggs	500	1.35	30	320	22.0	26	2.0	6	0.80
Sugar Puffs	Quaker	450	1.79	30	387	49.0	47	1.0	2	
Grape Nuts	Birds	450	1.75	30	345	12.0	13	1.9	5	0.60
Bran Flakes	Co-op	500	1.25	40	316	18.3	22	3.2	9	0.80
Coco Rice	Co-op	500	1.79	40	386	34.7	34	1.4	3	0.40
Corn Flakes	Co-op	500	0.69	40	375	7.0		1.0	2	1.00
Crisp Rice Cereal	Co-op	440	1.25	40	370	11.0	11	1.0	2	0.90

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
New Yorker B/fast Bar	Hero	Fortified with vitamins and calcium. (mean energy and sugar values for all flavours)			1.4	100	1.6	100	18.0
Chewy M/mallow Squares	Kelloggs	(no micronutrient amounts stated)			*		*		*
Chocolate Squares R/Krispie	Kelloggs	(no micronutrient amounts stated)			*		*		*
Coco Pops Cereal + Milk Bar	Kelloggs				1.2	85	1.3	85	15.5
Frosties Cereal and Milk Bar	Kelloggs				0.9	65	1.0	65	11.3
Nutrigrain Strawberry	Kelloggs	Now with calcium. Contains as much calcium as quarter of a pint of nutritious milk.			1.0	70	1.1	70	12.0
Nutrigrain Cherry	Kelloggs	Now with calcium. Contains as much calcium as quarter of a pint of nutritious milk.			1.0	70	1.1	70	12.0
Nutrigrain Blueberry	Kelloggs	Now with calcium. Contains as much calcium as quarter of a pint of nutritious milk.			1.0	70	1.1	70	12.0
Nutrigrain Apple	Kelloggs	Now with calcium. Contains as much calcium as quarter of a pint of nutritious milk.			1.0	70	1.1	70	12.0
Pop Tarts	Kelloggs	(average macro nutrient data for all flavours given here)			0.5	34	0.5	34	0.6
Smacks Cereal and Milk Bar	Kelloggs				1.0	75	1.2	75	13.5
Harvest Bar (choc chip)	Quaker	Contains vitamins and iron			1.1	79	1.2	76	13.6
Harvest Bar (white choc chip)	Quaker	Contains vitamins and iron			1.1	79	1.2	76	13.6
Dennis Chocolate Scoffers	'Beano'	6 added vitamins and iron			1.3	93	1.5	94	16.0
Healthwise Bran flakes	Kelloggs	Now with body balanced nutrition. 9 essential vitamins and Fe in every bowlful			0.8	60	1.1	65	14.2
Sugar Puffs	Quaker	Fortified with vitamins and iron			1.0	71	1.0	63	10.0
Grape Nuts	Birds		388	48	0.6	42	0.7	43	8.6
Bran Flakes	Co-op	4 added vitamins plus iron.			1.0	71	2.0	120	15.0
Coco Rice	Co-op	With added vitamins			1.0	71	1.5	94	16.0
Corn Flakes	Co-op				1.2	83	1.3	83	15.0
Crisp Rice Cereal	Co-op				1.2	86	1.3	81	15.0

Product name	Manufacturer	%RDA	B6		Folate		B12		Pantoth	
			mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
New Yorker B/fast Bar	Hero	100	2.0	100	200	100	1.0	100		
Chewy M/mallow Squares	Kelloggs		*		*		*			
Chocolate Squares R/Krispie	Kelloggs		*		*		*			
Coco Pops Cereal + Milk Bar	Kelloggs	85	1.7	85	170	85	0.9	85		
Frosties Cereal and Milk Bar	Kelloggs	65	1.3	65	125	65	0.7	65		
Nutrigrain Strawberry	Kelloggs	70	1.4	70	135	70	0.7	70		
Nutrigrain Cherry	Kelloggs	70	1.4	70	135	70	0.7	70		
Nutrigrain Blueberry	Kelloggs	70	1.4	70	135	70	0.7	70		
Nutrigrain Apple	Kelloggs	70	1.4	70	135	70	0.7	70		
Pop Tarts	Kelloggs	34	0.7	34	68	34	0.3	34		
Smacks Cereal and Milk Bar	Kelloggs	75	1.5	75	150	75	0.8	75		
Harvest Bar (choc chip)	Quaker									
Harvest Bar (white choc chip)	Quaker									
Dennis Chocolate Scoffers	'Beano'	89			250	125	1.7	170		
Healthwise Bran flakes	Kelloggs	80	2.3	115	333	165	1.7	165		
Sugar Puffs	Quaker	56								
Grape Nuts	Birds	47								
Bran Flakes	Co-op	83			250	125				
Coco Rice	Co-op	89			250	125	1.7	170		
Corn Flakes	Co-op	83	1.7	83	166	83	0.8	83	5.0	83
Crisp Rice Cereal	Co-op	83	1.7	85	166	83	1.8	83	5.0	83

Product name	Manufacturer	C		D		E		Ca		Mg		Fe		Zn		Misc		
		mg	%RDA	µg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	Subst	wt	%RDA
New Yorker B/fast Bar	Hero							800	100									
Chewy M/mallow Squares	Kelloggs											*						
Chocolate Squares R/Krispie	Kelloggs											*						
Coco Pops Cereal + Milk Bar	Kelloggs							720	90			12.0	85					
Frosties Cereal and Milk Bar	Kelloggs							720	90			8.8	65					
Nutrigrain Strawberry	Kelloggs							540	70			6.4	45					
Nutrigrain Cherry	Kelloggs							540	70			6.4	45					
Nutrigrain Blueberry	Kelloggs							540	70			6.4	45					
Nutrigrain Apple	Kelloggs							540	70			6.4	45					
Pop Tarts	Kelloggs																	
Smacks Cereal and Milk Bar	Kelloggs							720	90			10.5	75					
Harvest Bar (choc chip)	Quaker											11.4	81					
Harvest Bar (white choc chip)	Quaker											11.4	81					
Dennis Chocolate Scoffers	'Beano'			4.7	94							7.9	56					
Healthwise Bran flakes	Kelloggs	66	110	4.2	85	8.3	85					24.3	170					
Sugar Puffs	Quaker											8.0	57					
Grape Nuts	Birds																	
Bran Flakes	Co-op											18.0	129					
Coco Rice	Co-op			2.8	56							6.7	48					
Corn Flakes	Co-op											7.0	50			biotin	0.13	83
Crisp Rice Cereal	Co-op											7.0	50			biotin	0.10	80

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E	Sugar		Fat		Na
					kCal	g	%E	g	%E	g
Crunchy Rce and Wheat	Co-op	500		40	372	15.2	15	2.6	6	0.70
Frosted Flakes	Co-op	500	1.19	40	374	37.0	37	0.5	1	0.70
Fruit with Fibre	Co-op	500	1.39	40	359	20.8	22	5.6	14	0.20
Golden Puffs	Co-op	450	1.39	30	372	40.7	41	0.8	2	
Hi-fibre Bran	Co-op	500	99		385	17.0	17	5.0	12	1.20
Malt Crunchies	Co-op	500	1.15	45	345	15.0	16	2.0	5	0.40
Wholewheat Biscuit Cereal	Co-op	48bix		37.5	340	5.0	6	3.0	8	0.40
All Bran Bite Size	Kelloggs	400	1.35	45	290	9.0	12	3.5	11	0.50
All Bran Buds	Kelloggs	625	1.39	40	270	24.0	33	3.0	10	0.50
All Bran Plus	Kelloggs	400	1.39	45	270	18.0	25	3.5	12	0.90
Choco Cornflakes	Kelloggs	500	0.99	30	380	38.0	38	2.5	6	0.70
Cocoa Pops	Kelloggs	600	2.29	30	380	39.0	38	2.0	5	0.80
Common Sense	Kelloggs	500	2.25	40	340	21.0	23	5.0	13	0.60
Corn Pops	Kelloggs	450	1.9	30	380	35.0	35	2.0	5	0.60
Cornflakes	Kelloggs	500	0.99	30	370	8.0	8	0.7	2	1.10
Country Store	Kelloggs	2000	3.89	40	350	25.0	27	5.0	13	0.50
Crispix	Kelloggs	300	1.29	30	380	26.0	26	0.5	1	0.60
Crunchy Nut Cornflakes	Kelloggs	500	1.65	30	390	34.0	33	3.5	8	0.70
Frosted Wheats	Kelloggs	500	1.69	40	340	19.0	21	1.5	4	
Frosties	Kelloggs	500	1.45	30	370	38.0	39	0.5	1	0.70
Helthwise Sultana Bran	Kelloggs	500	1.55	40	320	32.0	38	2.0	6	0.60
Honey Nut Loops	Kelloggs	375	1.59	30	370	37.0	38	3.0	7	0.70
Honey Rice Krispies	Kelloggs	350	1.59	30	380	35.0	35	0.5	1	0.80
Just Right	Kelloggs	500	1.99	40	360	20.0	21	3.0	8	0.60
Multigrain Start	Kelloggs	375	1.98	40	360	30.0	31	2.0	5	0.50
Optima Fruit and Fibre	Kelloggs	500	1.65	40	350	21.0	23	4.5	12	0.60
Raisin Wheats	Kelloggs	500	1.95	40	320	18.0	21	1.5	4	0.01
Rice Krispies	Kelloggs	450	1.49	30	370	10.0	10	1.0	2	1.10

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Crunchy Rce and Wheat	Co-op	7 added vitamins plus iron.			2.3	165	2.6	165	29.7
Frosted Flakes	Co-op	Fortified with 8 vitamins and iron.			1.2	83	1.3	83	15.0
Fruit with Fibre	Co-op	4 added vitamins plus iron.			1.0	71	1.3	81	12.5
Golden Puffs	Co-op	With added vitamins			1.4	100			18.0
Hi-fibre Bran	Co-op	7 added vitamins plus iron.			1.2	85	1.4	85	15.0
Malt Crunchies	Co-op	Fortified with 7 added vitamins plus iron.			1.2	85	1.2	85	15.0
Wholewheat Biscuit Cereal	Co-op	With 4 added vitamins plus iron			1.2	85	1.4	85	15.0
All Bran Bite Size	Kelloggs	7 essential vitamins and iron in every bowlful			0.8	55	0.9	55	10.0
All Bran Buds	Kelloggs	Cancer Research Campaign flash. 6 essential vitamins and iron in every bowlful			0.9	65	1.0	65	11.3
All Bran Plus	Kelloggs	Cancer Research Campaign flash			0.9	65	1.0	65	11.3
Choco Cornflakes	Kelloggs	6 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Cocoa Pops	Kelloggs	6 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Common Sense	Kelloggs	6 essential vitamins and iron in every bowlful			0.9	65	1.0	65	11.3
Corn Pops	Kelloggs	7 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Cornflakes	Kelloggs	6 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Country Store	Kelloggs	6 essential vitamins and iron in every bowlful. Now with folic acid			0.9	65	1.0	65	11.3
Crispix	Kelloggs	6 essential vitamins in every bowlful			1.2	85	1.3	85	15.0
Crunchy Nut Cornflakes	Kelloggs	6 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Frosted Wheats	Kelloggs	6 essential vitamins and iron in every bowlful			0.9	65	1.0	65	11.3
Frosties	Kelloggs	6 essential vitamins and iron in every bowlful			2.3	165	1.3	85	30.0
Helthwise Sultana Bran	Kelloggs	Body balanced nutrition. 9 essential vitamins and iron in every bowlful			0.6	45	0.8	50	10.6
Honey Nut Loops	Kelloggs	7 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Honey Rice Krispies	Kelloggs	6 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Just Right	Kelloggs	6 essential vitamins and iron in every bowlful.			0.9	65	1.0	65	11.3
Multigrain Start	Kelloggs	9 essential vitamins+zinc and iron in every bowlful			1.2	85	1.3	85	15.0
Optima Fruit and Fibre	Kelloggs	Contains opti-B vitamins. 8 essential B vitamins and iron in every bowlful.			0.9	65	1.0	65	11.3
Raisin Wheats	Kelloggs	6 essential vitamins and iron in every bowlful			0.9	65	1.0	65	11.3
Rice Krispies	Kelloggs	6 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0

Product name	Manufacturer		B6		Folate		B12		Pantoth	
		%RDA	mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
Crunchy Rce and Wheat	Co-op	165	3.3	165	330	165	1.7	165	9.9	165
Frosted Flakes	Co-op	83	1.7	83	166	83	0.8	83	5.0	83
Fruit with Fibre	Co-op	69			250	125				
Golden Puffs	Co-op	100			200	100	1.0	100		
Hi-fibre Bran	Co-op	85	1.7	85	170	85	0.9	85	5.1	85
Malt Crunchies	Co-op	85	1.7	85	170	85	0.9	85	5.1	85
Wholewheat Biscuit Cereal	Co-op	85			170	85				
All Bran Bite Size	Kelloggs	55	1.1	55	110	55	0.6	55		
All Bran Buds	Kelloggs	65	1.3	65	125	65	0.7	65		
All Bran Plus	Kelloggs	65	1.3	65	125	65	0.6			
Choco Cornflakes	Kelloggs	85	1.7	85	167	85	0.9	85		
Cocoa Pops	Kelloggs	85	1.7	85	167	85	0.9	85		
Common Sense	Kelloggs	65	1.3	65	125	65	0.7	65		
Corn Pops	Kelloggs	85	1.7	85	167	85	0.9	85		
Cornflakes	Kelloggs	85	1.7	85	333	165	0.9	85		
Country Store	Kelloggs	65	1.3	65	125	65	0.7	65		
Crispix	Kelloggs	85	1.7	85	167	85	0.9	85		
Crunchy Nut Cornflakes	Kelloggs	85	1.7	85	167	85	0.9	85		
Frosted Wheats	Kelloggs	65	1.3	65	125	65	0.7	65		
Frosties	Kelloggs	165	3.3	165	167	85	0.9	85		
Helthwise Sultana Bran	Kelloggs	60	1.8	90	250	125	1.3	125		
Honey Nut Loops	Kelloggs	85	1.7	85	167	85	0.9	85		
Honey Rice Krispies	Kelloggs	85	1.7	85	167	85	0.9	85		
Just Right	Kelloggs	65	1.3	65	125	65	0.7	65		
Multigrain Start	Kelloggs	85	1.7	85	167	85	0.9	85		
Optima Fruit and Fibre	Kelloggs	65	1.3	65	125	65	0.7	65	3.8	65
Raisin Wheats	Kelloggs	65	1.3	65	125	65	0.7	65		
Rice Krispies	Kelloggs	85	1.7	85	333	165	0.9	85		

Product name	Manufacturer	C		D		E		Ca		Mg		Fe		Zn		Misc		
		mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	Subst	wt	%RDA
Crunchy Rce and Wheat	Co-op											23.1	165					
Frosted Flakes	Co-op											7.0	50			biotin	0.12	83
Fruit with Fibre	Co-op											10.0	71					
Golden Puffs	Co-op			5.0	100													
Hi-fibre Bran	Co-op											12.0	85					
Malt Crunchies	Co-op											12.0	85					
Wholewheat Biscuit Cereal	Co-op											12.0	85					
All Bran Bite Size	Kelloggs			2.8	55					0		7.8	55					
All Bran Buds	Kelloggs											8.8	65					
All Bran Plus	Kelloggs	26	45	3.2	65	4.3	45	340	45	220	75	8.8	65	5.6	35			
Choco Cornflakes	Kelloggs											7.9	55					
Cocoa Pops	Kelloggs											7.9	55					
Common Sense	Kelloggs											6.0	45					
Corn Pops	Kelloggs			4.2	85							7.9	55					
Cornflakes	Kelloggs											7.9	55					
Country Store	Kelloggs											6.0	45					
Crispix	Kelloggs																	
Crunchy Nut Cornflakes	Kelloggs											7.9	55					
Frosted Wheats	Kelloggs											6.0	45					
Frosties	Kelloggs											7.9	55					
Helthwise Sultana Bran	Kelloggs	50	85	3.1	65	6.3	65					18.2	130					
Honey Nut Loops	Kelloggs			4.2	85							7.9	55					
Honey Rice Krispies	Kelloggs			4.2	85							7.9	55					
Just Right	Kelloggs											8.8	65					
Multigrain Start	Kelloggs	50	85	4.2	85	8.3	85					11.7	85	12.5	85			
Optima Fruit and Fibre	Kelloggs											8.8	65			biotin	0.09mg	65
Raisin Wheats	Kelloggs											6.0	45					
Rice Krispies	Kelloggs											7.9	55					

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E	Sugar		Fat		Na
					kCal	g	%E	g	%E	g
Ricicles	Kelloggs	450	1.95	30	380	37.0	37	0.7	2	0.70
Special K	Kelloggs	500	2.19	30	370	17.0	17	1.0	2	0.90
Bran Sticks	M + S	500	0.99	40	289	21.4	28	2.5	8	0.74
Cornflakes	M + S	500	0.99	30	363	7.0	7	1.0	2	0.95
Crispy Rice	M + S	440	1.39	30	371	11.0	11	1.0	2	0.94
Crunchy Puffs	M + S	450	1.39	30	388	56.8	55	1.6	4	0.05
Frosted Flakes	M + S	500	1.49	30	365	37.0	38	0.5	1	0.70
Fruit and Flake	M + S	500	1.89	30	383	27.2	27	6.2	15	0.62
Multiflakes	M + S	500	1.89	30	362	16.3	17	1.9	5	0.92
Clusters	Nestle	500	2.25	30	380	23.4	23	6.7	16	0.50
Cheerios	Nestle	375	1.45	30	369	22.4	23	3.8	9	0.08
Cinammon Grahams	Nestle	375	1.79	30	413	33.9	31	9.8	21	0.70
Coco Shreddies	Nestle	500	1.69	45	363	32.5	34	1.8	4	0.40
Fibre 1	Nestle	500	1.49	30	267	15.5	22	2.6	9	0.60
Frosted Shreddies	Nestle	500	1.69	45	363	35.4	37	1.3	3	0.40
Golden Grahams	Nestle	375	1.79	30	380	32.0	32	3.0	7	1.00
Golden Nuggets	Nestle	375	1.59	30	381	40.0	39	0.7	2	0.50
Honey Nut Cheerios	Nestle	375	1.65	30	374	35.8	36	3.4	8	0.70
Nesquik Cereal	Nestle	375	1.65	30	401	37.8	35	4.8	11	0.30
Shreddies	Nestle	500	1.59	45	343	15.4	17	1.9	5	0.50
Choco Puffs	Quaker	375	1.89	35	401	49.0	46	3.5	8	0.30
Cornflakes	Safeway	500	0.89	30	374	8.9	9	0.8	2	1.10
Fibre Bran	Safeway	750	1.35	50	276	23.8	32	4.0	13	0.90
Frosted Flakes	Safeway	500	1.19	30	379	39.6	39	0.5	1	0.80
Fruit and Fibre	Safeway	500	1.59	30	360	27.5	29	6.2	16	0.60
Get Up and Go	Safeway	500	2.05	50	202	11.5	21	6.0	27	0.10
Malt Bites	Safeway	500	1.12	40	335	15.4	17	2.1	6	0.40
Wheat Bisks	Safeway	444	1.09	37	343	4.7	5	2.7	7	0.30
Choco Snaps	Sainsbury	500	1.99	30	379	38.5	38	2.4	6	0.70
corn Flakes	Sainsbury	500	0.89	30	367	8.9	9	0.8	2	1.00
Economy Cornflakes	Sainsbury	500	0.47	30	383	8.6	8	0.6	1	1.20
Frosted Flakes	Sainsbury	500	1.15	30	373	39.6	40	0.5	1	0.80

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Ricicles	Kelloggs	7 essential vitamins and iron in every bowlful			1.2	85	1.3	85	15.0
Special K	Kelloggs	8 essential vitamins and iron in every bowlful.			2.3	165	2.7	165	30.0
Bran Sticks	M + S	Fortified with vitamins and minerals			0.9	65	1.0	65	11.7
Cornflakes	M + S	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Crispy Rice	M + S	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Crunchy Puffs	M + S	Fortified with vitamins			0.9	65			11.7
Frosted Flakes	M + S	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Fruit and Flake	M + S	Fortified with vitamins and iron			1.6	115	1.8	115	20.7
Multiflakes	M + S	Fortified with vitamins and iron			2.3	165	2.6	165	29.7
Clusters	Nesltle				1.2	85	1.4	85	15.3
Cheerios	Nestle				1.2	85	1.4	85	15.3
Cinammon Grahams	Nestle	8 vitamins and iron			1.2	85	1.4	85	15.3
Coco Shreddies	Nestle	8 vitamins and iron			0.6	40	0.7	40	7.5
Fibre 1	Nestle				1.2	85	1.4	85	15.3
Frosted Shreddies	Nestle	8 vitamins and iron			0.6	40	0.7	40	7.5
Golden Grahams	Nestle	8 vitamins and iron			1.2	85	1.4	85	15.3
Golden Nuggets	Nestle	8 vitamins and iron			1.2	85	1.4	85	15.3
Honey Nut Cheerios	Nestle	8 vitamins and iron			1.2	85	1.4	85	15.3
Nesquik Cereal	Nestle	8 vitamins and iron to help keep you and your family healthy			1.2	85	1.4	85	15.3
Shreddies	Nestle	8 vitamins and iron to help keep you and your family healthy			0.8	55	0.9	55	10.0
Choco Puffs	Quaker	With added vitamins and iron			1.0	71	1.0	63	10.0
Cornflakes	Safeway	Fortified with 8 vitamins and iron			1.4	100	1.6	100	18.0
Fibre Bran	Safeway	Fortified with 8 vitamins and iron			1.4	100	1.6	100	18.0
Frosted Flakes	Safeway	Fortified with 8 vitamins and iron			1.4	100	1.6	100	18.0
Fruit and Fibre	Safeway	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Get Up and Go	Safeway	Calcium, 10 vitamins, magnesium, folic acid			0.7	50	0.8	50	9.0
Malt Bites	Safeway	Fortified with 8 vitamins and iron			1.4	100	1.6	100	18.0
Wheat Bisks	Safeway				1.2	85	1.4	85	15.3
Choco Snaps	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
corn Flakes	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Economy Cornflakes	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Frosted Flakes	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0

Product name	Manufacturer	%RDA	B6		Folate		B12		Pantoth	
			mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
Ricicles	Kelloggs	85	1.7	85	2	85	0.9	85		
Special K	Kelloggs	165	3.3	165	333	165	1.7	165		
Bran Sticks	M + S	65	1.3	65	130	65	0.7	65		
Cornflakes	M + S	85	1.7	85	170	85	0.9	85	5.1	85
Crispy Rice	M + S	85	1.7	85	170	85	0.9	85	5.1	85
Crunchy Puffs	M + S	65			130	65	0.7	65		
Frosted Flakes	M + S	85	1.7	85	170	85	0.9	85	5.1	85
Fruit and Flake	M + S	115	2.3	115	230	115	1.2	115		
Multiflakes	M + S	165	3.3	165	333	165	1.7	165		
Clusters	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Cheerios	Nestle	85	1.7	85	170	80,	0.9	85	5.1	85
Cinammon Grahams	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Coco Shreddies	Nestle	40	0.8	40	83	40	0.4	40	2.5	40
Fibre 1	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Frosted Shreddies	Nestle	40	0.8	40	83	40	0.4	40	2.5	40
Golden Grahams	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Golden Nuggets	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Honey Nut Cheerios	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Nesquik Cereal	Nestle	85	1.7	85	170	85	0.9	85	5.1	85
Shreddies	Nestle	55	1.1	55	111	55	0.6	55	3.3	55
Choco Puffs	Quaker	56								
Cornflakes	Safeway	100	2.0	100	200	100	1.0	100	6.0	100
Fibre Bran	Safeway	100	2.0	100	400	200	1.0	100	6.0	100
Frosted Flakes	Safeway	100	2.0	100	200	100	1.0	100	6.0	100
Fruit and Fibre	Safeway	85	1.7	85	170	85	0.9	85	5.1	85
Get Up and Go	Safeway	50	1.0	50	100	50	0.5	50	3.0	50
Malt Bites	Safeway	100	2.0	100	200	100	1.0	100	6.0	100
Wheat Bisks	Safeway	85			170	85				
Choco Snaps	Sainsbury	100	2.0	100	200	100	1.0	100	6.0	100
corn Flakes	Sainsbury	100	2.0	100	400	200	1.0	100	6.0	100
Economy Cornflakes	Sainsbury	100			200	100	1.0	100		
Frosted Flakes	Sainsbury	100	2.0	100	200	100	1.0	100	6.0	100

Product name	Manufacturer	C		D		E		Ca		Mg		Fe		Zn		Misc		
		mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	Subst	wt	%RDA
Ricicles	Kelloggs			4.2	85							7.9	55					
Special K	Kelloggs	100	165									23.3	165					
Bran Sticks	M + S					4.5	45	360	45			9.1	65					
Cornflakes	M + S											7.0	50			biotin	0.13mg	
Crispy Rice	M + S											7.0	50			biotin	0.13mg	85
Crunchy Puffs	M + S																	
Frosted Flakes	M + S											7.0	50			biotin	0.13mg	85
Fruit and Flake	M + S	69	115									16.1	115					
Multiflakes	M + S	99	165									23.1	165					
Clusters	Nestle	51	85									11.9	85					
Cheerios	Nestle	51	85															
Cinammon Grahams	Nestle	51	85									11.9	85					
Coco Shreddies	Nestle			2.1	40							5.9	40					
Fibre 1	Nestle	51	85					156	19			11.9	85					
Frosted Shreddies	Nestle			2.1	40							5.9	40					
Golden Grahams	Nestle	51	85									11.9	85					
Golden Nuggets	Nestle	51	85									11.9	85					
Honey Nut Cheerios	Nestle	51	85									11.9	85					
Nesquik Cereal	Nestle	51	85									11.9	85					
Shreddies	Nestle			2.8	55							7.8	55					
Choco Puffs	Quaker											8.0	57					
Cornflakes	Safeway			5.0	100							14.0	100					
Fibre Bran	Safeway			5.0	100							14.0	100					
Frosted Flakes	Safeway			5.0	100							14.0	100					
Fruit and Fibre	Safeway											11.9	85					
Get Up and Go	Safeway	30	50	2.5	50	5.0	50	85	11	73	24							
Malt Bites	Safeway			5.0	100							14.0	100					
Wheat Bisks	Safeway											11.9	85					
Choco Snaps	Sainsbury			5.0	100							14.0	100					
corn Flakes	Sainsbury			5.0	100							14.0	100					
Economy Cornflakes	Sainsbury			5.0	100							8.8	63					
Frosted Flakes	Sainsbury			5.0	100							14.0	100					

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E	Sugar		Fat		Na
					kCal	g	%E	g	%E	g
Fruit and Fibre	Sainsbury	500	1.39	30	356	26.3	28	6.1	15	0.50
Healthy Balance	Sainsbury	500	1.99	30	364	14.9	15	1.3	3	0.70
Instant Hot Oat Cereal	Sainsbury	750	1.41	30	356	1.8	2	8.3	21	
Oat and Bran Flakes	Sainsbury	500	1.19	30	344	13.6	15	5.9	15	0.80
Rice Pops	Sainsbury	440	1.29	30	370	9.8	10	1.3	3	1.10
Sultana Bran	Sainsbury	500	1.35	30	320	31.9	37	1.9	5	0.50
Wholewheat Biscuits	Sainsbury	860	1.93	36	340	4.7	5	2.7	7	0.40
Wholewheat Miniflakes	Sainsbury	750	1.19	30	348	5.1	5	2.1	5	0.30
Sensation Honey and Pecan	Seven Day	375	1.65	30	389	25.3	24	4.9	11	0.70
Sensation Vanilla and Almond	Seven Day	275	1.65	30	408	20.3	19	9.4	21	0.70
Triples	Seven Day	500	1.69	30	383	28.5	28	3.0	7	0.70
Bran Flakes	Tesco	500	1.25	30	324	16.9	20	2.4	7	0.70
Breakfast Boulders	Tesco	375	0.99	30	379	31.1	31	1.4	3	0.50
Choco Snaps	Tesco	375	1.4	30	379	38.5	38	2.4	6	0.70
Chocoflakes	Tesco	500	1.59	30	369	36.7	37	0.8	2	0.50
Corn Flakes	Tesco	500	0.89	30	367	8.9	9	0.8	2	1.10
Frosted Flakes	Tesco	750	1.19	30	373	39.6	40	0.5	1	0.80
Fruit and Fibre	Tesco	500	1.55	40	368	23.8	24	6.0	15	0.60
Golden Puffs	Tesco	450	1.15	30	378	50.5	50	1.9	5	0.10
High Fibre Bran	Tesco	500	1.05	40	285	18.0	24	5.0	16	0.70
Honet Nut Cornflakes	Tesco	500	1.35	30	387	33.4	32	4.2	10	0.80
I Love Teddy Crisp	Tesco	250	1.09	25	386	39.5	38	6.0	14	0.20
Instant Hot Oat Cereal	Tesco	500	1.02	30	356	1.8	2	8.3	21	tr
Malt Wheats	Tesco	500	1.05	45	335	15.4	17	2.1	6	0.40
Pingu Crisps	Tesco	250	1.09	25	363	36.5	38	2.5	6	0.20
Rice Snaps	Tesco	440	1.19	30	370	9.8	10	1.3	3	1.20
Sultana Bran	Tesco	750	1.79	30	320	31.0	36	1.9	5	0.50
Value Cornflakes	Tesco	500	0.47	30	383			1.6	4	
Value Frosted Flakes	Tesco	500	0.63	30	389			0.4	1	
Wheat Biscuits	Tesco	444	1.05	37	340	4.7	5	2.7	7	0.30

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Fruit and Fibre	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Healthy Balance	Sainsbury	Fortified with vitamins and iron			2.3	165	2.6	165	29.7
Instant Hot Oat Cereal	Sainsbury	Fortified with vitamins and iron			1.2	86	1.4	88	15.3
Oat and Bran Flakes	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Rice Pops	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Sultana Bran	Sainsbury	Fortified with vitamins and iron			1.0	70	1.1	70	12.6
Wholewheat Biscuits	Sainsbury	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Wholewheat Miniflakes	Sainsbury	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Sensation Honey and Pecan	Seven Day	A good supply of 8 vitamins and iron			1.2	86	1.3	81	15.0
Sensation Vanilla and Almond	Seven Day	A good supply of 8 vitamins and iron			1.2	86	1.3	81	15.0
Triples	Seven Day	Good supply of 8 vitamins and iron			1.2	86	1.3	81	15.0
Bran Flakes	Tesco	High in folic acid. Fortified with vitamins and iron. FAF			1.4	100	1.6	100	18.0
Breakfast Boulders	Tesco	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Choco Snaps	Tesco	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Chocoflakes	Tesco	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Corn Flakes	Tesco				1.4	100	1.6	100	18.0
Frosted Flakes	Tesco	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Fruit and Fibre	Tesco	Fortified with vitamins and iron			1.2	86	1.4	87	15.3
Golden Puffs	Tesco	Fortified with vitamins			1.4	100			18.0
High Fibre Bran	Tesco	Fortified with vitamins			1.0	71	1.5	94	16.0
Honet Nut Cornflakes	Tesco				1.4	100	1.6	100	18.0
I Love Teddy Crisp	Tesco	Fortified with vitamins			1.4	100	1.6	100	18.0
Instant Hot Oat Cereal	Tesco	source of 7 B vitamins, calcium and iron			1.2	85	1.4	85	15.3
Malt Wheats	Tesco	Fortified with vitamins			1.2	86	14.0	87	15.3
Pingu Crisps	Tesco	Fortified with vitamins			1.4	100	1.6	100	18.0
Rice Snaps	Tesco	Fortified with vitamins and iron			1.4	100	1.6	100	18.0
Sultana Bran	Tesco	High in folic acid. Fortified with vitamins and iron. FAF			1.0	71	1.1	69	12.6
Value Cornflakes	Tesco				*		*		*
Value Frosted Flakes	Tesco				*		*		*
Wheat Biscuits	Tesco	Fortified with vitamins and iron			1.2	86	1.4	87	15.3

Product name	Manufacturer	%RDA	B6		Folate		B12		Pantoth	
			mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
Fruit and Fibre	Sainsbury	100	2.0	100	200	100	1.0	100	6.0	100
Healthy Balance	Sainsbury	165	3.3	165	330	165	1.7	165	9.9	165
Instant Hot Oat Cereal	Sainsbury	85	1.7	85	170	85	0.9	90	5.1	85
Oat and Bran Flakes	Sainsbury	100	2.0	100	200	100	1.0	100		
Rice Pops	Sainsbury	100	2.0	100	200	100	1.0	100	6.0	100
Sultana Bran	Sainsbury	70	1.4	70	280	140	0.7	70	4.2	70
Wholewheat Biscuits	Sainsbury	85			170	85				
Wholewheat Miniflakes	Sainsbury	100			200	100				
Sensation Honey and Pecan	Seven Day	83	1.7	85	167	84	0.8	80	5.0	83
Sensation Vanilla and Almond	Seven Day	83	1.7	85	167	84	0.8	80	5.0	83
Triples	Seven Day	83	1.7	85	167	84	0.8	80	5.0	83
Bran Flakes	Tesco	100	2.0	100	400	200	1.0	100	6.0	100
Breakfast Boulders	Tesco	100	2.0	100	200	100	1.0	100	6.0	100
Choco Snaps	Tesco	100	2.0	100	200	100	1.0	100	6.0	100
Chocoflakes	Tesco	100	2.0	100	250	125	1.0	100	6.0	100
Corn Flakes	Tesco	100	2.0	100	400	200	1.0	100	6.0	100
Frosted Flakes	Tesco	100	2.0	100	200	100	1.0	100	6.0	100
Fruit and Fibre	Tesco	85	1.7	85	170	85	0.9	90	5.1	85
Golden Puffs	Tesco	100			200	100	1.0	100		
High Fibre Bran	Tesco	89	1.8	90						
Honet Nut Cornflakes	Tesco	100	2.0	100	400	200	1.0	100	6.0	100
I Love Teddy Crisp	Tesco	100	2.0	100	200	100	1.0	100	6.0	100
Instant Hot Oat Cereal	Tesco	85	1.7	85	170	85	0.9	85	5.1	85
Malt Wheats	Tesco	85	1.7	85	170	85	0.9	85	85.0	
Pingu Crisps	Tesco	100	2.0	100	200	100	1.0	100	6.0	100
Rice Snaps	Tesco	100	2.0	100	200	100	1.0	100	6.0	100
Sultana Bran	Tesco	70	1.4	70	280	140	0.7	70	4.2	70
Value Cornflakes	Tesco				*		*			
Value Frosted Flakes	Tesco				*		*			
Wheat Biscuits	Tesco	85			170	85				

Product name	Manufacturer	C		D		E		Ca		Mg		Fe		Zn		Misc		
		mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	Subst	wt	%RDA
Fruit and Fibre	Sainsbury			5.0	100							7.8	56					
Healthy Balance	Sainsbury											23.1	165					
Instant Hot Oat Cereal	Sainsbury							1200	150			11.9	85					
Oat and Bran Flakes	Sainsbury	34	57	2.8	56							7.8	56					
Rice Pops	Sainsbury			5.0	100							14.0	100					
Sultana Bran	Sainsbury			3.5	70							9.8	70					
Wholewheat Biscuits	Sainsbury											11.9	85					
Wholewheat Miniflakes	Sainsbury											7.8	56					
Sensation Honey and Pecan	Seven Day											7.9	56			biotin	.12mg	80
Sensation Vanilla and Almond	Seven Day											7.9	56			biotin	.12mg	80
Triples	Seven Day											7.9	56			biotin	.1mg	80
Bran Flakes	Tesco			5.0	100							14.0	100					
Breakfast Boulders	Tesco			5.0	100							14.0	100					
Choco Snaps	Tesco			5.0	100							14.0	100					
Chocoflakes	Tesco			5.0	100							14.0	100					
Corn Flakes	Tesco			5.0	100							14.0	100					
Frosted Flakes	Tesco			5.0	100							14.0	100					
Fruit and Fibre	Tesco											11.9	85					
Golden Puffs	Tesco			5.0	100													
High Fibre Bran	Tesco			2.8	56													
Honet Nut Cornflakes	Tesco			5.0	100							14.0	100					
I Love Teddy Crisp	Tesco					10.0	100											
Instant Hot Oat Cereal	Tesco							1200	150			11.9	85					
Malt Wheats	Tesco											11.9	85					
Pingu Crisps	Tesco					10.0	100											
Rice Snaps	Tesco			5.0	100							14.0	100					
Sultana Bran	Tesco			3.5	70							9.8	70					
Value Cornflakes	Tesco			*								*						
Value Frosted Flakes	Tesco			*								*						
Wheat Biscuits	Tesco											11.9	85					

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E	Sugar		Fat		Na
					kCal	g	%E	g	%E	g
Bran Flakes	Waitrose	500	1.15	30	333	16.9	19	2.4	6	
Cornflakes	Waitrose	500	1.35	30	372	8.9	9	0.7	2	1.10
Frosted Flakes	Waitrose	500	1.15	30	382	39.3	39	0.5	1	0.70
Fruit and Fibre	Waitrose	500	1.39	30	345	30.1	33	6.1	16	0.60
High Fibre Bran	Waitrose	500	1.05	40	297	20.7	26	4.1	12	1.10
Rice Pops	Waitrose	440	1.29	30	382	10.1	10	1.4	3	1.20
Special Choice	Waitrose	500	1.85	30	474	4.6	4	0.8	2	0.20
Wholewheat biscuits	Waitrose	430	1.05	36	343	4.7	5	2.7	7	0.30
Advantage	Weetabix	500	1.25	30	350	17.8	19	2.4	6	0.80
Alpen Nutty Crunch	Weetabix	500	1.85	40	382	23.0	23	9.0	21	0.30
Crunchy Bran	Weetabix	375	1.35	40	295	16.5	21	4.7	14	0.70
Fruitibix	Weetabix	500	1.79	40	353	27.0	29	3.8	10	0.20
Readybrek	Weetabix	500	1.23	40	356	1.8	2	8.3	21	tr
Readybrek with Chocolate	Weetabix	225	1.05	40	377	24.6	24	9.6	23	tr
Weetabix	Weetabix	444	1.17	37	340	4.7	5	2.7	7	0.30
Weetos	Weetabix	375	1.55	30	384	36.3	35	5.0	12	0.30
Perfect Balance	Weight Watchers	375	1.65	30	298	6.4	8	1.6	5	0.70
Bournvita	Cadbury	400	1.89	12	373	67.9	68	1.7	4	0.10
Ovaline	Novartis	200	1.19	25	360	47.0	49	1.9	5	0.13
Ovaltine Light	Novartis	400	1.99	20	358	56.7	59	5.9	15	0.90
Ovaltine Power	Novartis	350	2.4	25	363	51.8	54	6.0	15	0.40
Horlicks Light Hot Chocolate	SmithKline Beecham	500	2.59	32	399	66.0	62	8.1	18	0.60
Horlicks Light Malt	SmithKline Beecham	1000	3.95	32	381	58.7	58	4.5	11	0.80
Horlicks Light Malted Chocolate	SmithKline Beecham	500	2.59	32	402	53.2	50	7.5	17	0.70
Horlicks Original	SmithKline Beecham	800	2.99	25	381	46.4	46	4.7	11	0.49

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Bran Flakes	Waitrose	Fortified: vitamins; iron			1.4	100	1.6	100	18.0
Cornflakes	Waitrose	Fortified: vitamins; iron			1.4	100	1.6	100	18.0
Frosted Flakes	Waitrose	Fortified: vitamins; iron			1.4	100	1.6	100	18.0
Fruit and Fibre	Waitrose	Fortified: vitamins; iron			1.0	70	1.1	70	12.6
High Fibre Bran	Waitrose	Fortified: vitamins; iron			0.5	34	0.6	35	6.1
Rice Pops	Waitrose	Fortified: vitamins; iron			1.4	100	1.6	100	18.0
Special Choice	Waitrose	Fortified: vitamins; iron			0.7	50	0.8	50	8.9
Wholewheat biscuits	Waitrose	Fortified: vitamins; iron			1.2	85	1.4	85	15.3
Advantage	Weetabix	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Alpen Nutty Crunch	Weetabix				y				
Crunchy Bran	Weetabix				1.2	85	1.4	85	15.3
Fruitibix	Weetabix				1.2	85	1.4	85	15.3
Readybrek	Weetabix	Rich in calcium, vitamins and iron			1.2	85	1.4	85	15.3
Readybrek with Chocolate	Weetabix	Rich in calcium, vitamins and iron			1.2	85	1.4	85	15.3
Weetabix	Weetabix	With added vitamins and iron			1.2	85	1.4	85	15.3
Weetos	Weetabix	Fortified with vitamins and iron			1.2	85	1.4	85	15.3
Perfect Balance	Weight Watchers	Fortified with the vitamins and iron			2.3	165	2.6	165	29.7
Bournvita	Cadbury		1340	167	2.3	167	2.7	167	30.0
Ovaline	Novartis	Rich in vitamins and minerals			1.4	100	1.6	100	
Ovaltine Light	Novartis	A good source of iron. Rich in vitamins and minerals essential when dieting. Contains folic acid.			3.5	250	4.0	250	
Ovaltine Power	Novartis	Contains at least 25% of RDA of 7 essential vitamins and zinc. Contains the same amount of calcium as milk. Rich in iron.	1	100	1.4	100	1.6	100	
Horlicks Light Hot Chocolate	SmithKline Beecham	Fortified with calcium and balanced amounts of 10 essential vitamins	500	63	0.9	63	1.0	63	11.3
Horlicks Light Malt	SmithKline Beecham	Fortified with calcium and balanced amounts of 10 essential vitamins	500	63	0.9	63	1.0	63	11.3
Horlicks Light Malted Chocolate	SmithKline Beecham	Fortified with calcium and balanced amounts of 10 essential vitamins	500	63	0.9	63	1.0	63	11.3
Horlicks Original	SmithKline Beecham	Fortified with 8 essential vitamins and calcium.	640	80	1.1	80	1.3	80	14.4

Product name	Manufacturer	%RDA	B6		Folate		B12		Pantoth	
			mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
Bran Flakes	Waitrose	100	2.0	100	200	100	1.0	100	6.0	100
Cornflakes	Waitrose	100	2.0	100	200	100	1.0	100	6.0	100
Frosted Flakes	Waitrose	100	2.0	100	200	100	1.0	100	6.0	100
Fruit and Fibre	Waitrose	70	1.4	70	200	100	0.7	70	4.2	70
High Fibre Bran	Waitrose	34	0.7	34	68	34	0.4	36	2.0	34
Rice Pops	Waitrose	100	2.0	100	200	100	1.0	100	6.0	100
Special Choice	Waitrose	50	1.0	50	99	50	0.5	50	3.0	50
Wholewheat biscuits	Waitrose	85			170	85				
Advantage	Weetabix	85	1.7	85	170	85	0.9	85	5.1	85
Alpen Nutty Crunch	Weetabix		y		y		y		y	
Crunchy Bran	Weetabix	85	1.7	85	170	85	0.9	85	5.1	85
Fruitibix	Weetabix	85			170	85				
Readybrek	Weetabix	85	1.7	85	170	85	0.9	85	5.1	85
Readybrek with Chocolate	Weetabix	85	1.7	85	170	85	0.9	85	5.1	85
Weetabix	Weetabix	85			170	85				
Weetos	Weetabix	85	1.7	85	170	85	0.9	85	5.1	85
Perfect Balance	Weight Watchers	165	3.3	165	333	166	1.7	165		
Bournvita	Cadbury	167	3.3	167	335	167	1.7	167	10.0	167
Ovaline	Novartis		2.0	100	400	200				
Ovaltine Light	Novartis		5.0	250	250	125	2.5	250		
Ovaltine Power	Novartis				200	100				
Horlicks Light Hot Chocolate	SmithKline Beecham	63	1.3	63	125	63	0.6	63		
Horlicks Light Malt	SmithKline Beecham	63	1.3	63	125	63	0.6	63		
Horlicks Light Malted Chocolate	SmithKline Beecham	63	1.3	63	125	63	0.6	63		
Horlicks Original	SmithKline Beecham	80			160	80	0.8	80		

Product name	Manufacturer	C		D		E		Ca		Mg		Fe		Zn		Misc		
		mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	mg	%RDA	Subst	wt	%RDA
Bran Flakes	Waitrose			5.0	100							14.0	100					
Cornflakes	Waitrose			5.0	100							14.0	100					
Frosted Flakes	Waitrose			5.0	100							14.0	100					
Fruit and Fibre	Waitrose			3.5	70							9.8	70					
High Fibre Bran	Waitrose											4.8	34					
Rice Pops	Waitrose			5.0	100							14.0	100					
Special Choice	Waitrose											6.9	50					
Wholewheat biscuits	Waitrose											12.0	85					
Advantage	Weetabix											11.9	85					
Alpen Nutty Crunch	Weetabix																	
Crunchy Bran	Weetabix											11.9	85					
Fruitibix	Weetabix											11.9	85					
Readybrek	Weetabix							1200	150			11.9	85					
Readybrek with Chocolate	Weetabix							1200	150			11.9	85					
Weetabix	Weetabix											11.9	85					
Weetos	Weetabix											11.9	85					
Perfect Balance	Weight Watchers											7.9	57					
Bournvita	Cadbury			8.4	167			1340	167					25.0	167			
Ovaline	Novartis	120	200	5.0	100	20.0	200	800	100	300	100	28.0	200	30.0	200			
Ovaltine Light	Novartis			6.3	125	12.5	125	1000	125			35.0	250	37.5	250			
Ovaltine Power	Novartis	60	100	5.0	100	10.0	100	1000	124			28.8	204	15.0	100			
Horlicks Light Hot Chocolate	SmithKline Beecham	38	63	3.1	63	6.3	63	425	53									
Horlicks Light Malt	SmithKline Beecham	38	63	3.1	63	6.3	63	655	82									
Horlicks Light Malted Chocolate	SmithKline Beecham	38	63	3.1	63	6.3	63	720	90									
Horlicks Original	SmithKline Beecham	48	80	4.0	80			640	80			11.2	80					

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E kCal	Sugar g	Fat g	%E	%E	Na g
Five Alive Citrus	Coca-Cola	1000	0.69	250	50	12.0	90			
Five Alive Orange Breakfast	Coca-Cola	1000	0.69	250	46	11.0	90			
Five Alive Tropical	Coca-Cola	1000	0.69	250	41	10.0	91			
Fruit Burst	Del Monte	1000	0.75	250	53	12.4	88			
Apple C	Libby's	1000	0.75	250	41	9.8	90			
Orange C	Libby's	1000	0.75	250	41	9.8	90			
Red Devil	Maritime Foods	250	0.99	250	65	15.0	87			
Diet Quest Still Lemon & Mandarin	Marks and Spencer	330	0.59	330	4	0.5	47			
Fruit Blast Mango	Marks and Spencer	500	0.59	250	50	11.6	87	0.2	4	
Fruit Blast Passion Fruit	Marks and Spencer	500	0.59	250	50	11.6	87	0.2	4	
Quest Still Grapefruit & Lime	Marks and Spencer	330	0.59	330	16	4.0	94			
Cranberry and Apple	Ocean Spray	1000	1.19	200	47	11.2	89			
Cranberry and Blackcurrant	Ocean Spray	1000	1.19	200	54	13.1	91			
Cranberry and Raspberry	Ocean Spray	1000	1.19	200	55	13.3	91			
Cranberry Classic	Ocean Spray	1000	1.19	200	51	12.3	90			
Cranberry Classic Light	Ocean Spray	1000	1.19	200	24	5.6	88			
Cranberry Select	Ocean Spray	1000	1.79	200	61	14.7	90			
Orange and Cranberry	Ocean Spray	1000	1.79	200	48	11.5	90			
Pink Grapefruit Juice Drink	Ocean Spray	1000	0.99	200	42	9.7	87			

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E kCal	Sugar g	Fat g	%E	%E	Na g
Ame Dry	Orchid Drinks	750	1.99	200	25	6.3	95			
Ame Red	Orchid Drinks	750	1.99	200	33	8.3	94			
Ame Rose	Orchid Drinks	750	1.99	200	33	8.3	94			
Ame White	Orchid Drinks	750	1.99	200	38	9.5	94			
Purdey's Multivit Fruit Drink	Orchid Drinks	330	0.99	330	38	9.5	94			
Sunny Delight California Style	Proctor and Gamble	1500	1.15	200	45	10.0	83			
Sunny Delight Citrus Fruits	Proctor and Gamble	500	0.59	200	48	11.0	86	0.1	2	
Sunny Delight Florida Style	Proctor and Gamble	1500	1.15	200	43	10.0	87			
Sunny Delight Mango	Proctor and Gamble	500	0.59	200	43	10.0	87	0.1	2	
Sunny Delight Passion Fruit	Proctor and Gamble	500	0.59	200	43	10.0	87	0.1	2	
Sunny Delight Strawberry	Proctor and Gamble	500	0.59	200	44	10.0	85	0.1	2	
Red Bull Stimulation	Red Bull Co	250	1.05	250	45	11.3	94			
Special 'R' Mango	Robinsons	1000	0.89	50	8	0.9	41			
Special 'R' Orange	Robinsons	1000	0.89	50	8	0.9	41			
Apple and Elderflower Drink	Safeway	1000	0.81	100	44	10.8	92			
High Juice Orange Squash	Safeway	1000	1.45	60	246	58.7	89	0.2	1	0.20
Lemon and Lime squash	Safeway	1000	0.89	60	103	24.6	90	0.2	2	
NAS Squash (all flavours)	Safeway	1000	0.73	63	8	0.8	37			0.10
Orange Lemon and Pineapple Squash	Safeway	1000	0.73	60	63	14.6	87			

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E kCal	Sugar g	Fat g	%E	%E	Na g
Traditional Style Lemon Drink	Safeway	1000	0.81	100	50	11.8	89			
Tropical Fruit Juice Drink	Safeway	1000	0.84	100	52	12.3	89			
Whole Orange Squash	Safeway	1000	0.73	60	47	10.6	85			
Lucozade Low Calorie	SmithKline Beecham	345	0.52	345	4	0.5	47			
Lucozade Original	SmithKline Beecham	345	0.52	345	73	17.9	92			
Lucozade Sport	SmithKline Beecham	345	0.52	345	28	6.4	86			0.05
Ribena	SmithKline Beecham	600	1.85	30	270	66.0	92			
Ribena Light	SmithKline Beecham	600	1.85	30	102	13.2	49			
Ribena Smoothie	SmithKline Beecham	330		330	44	10.1	86	0.2	4	
Ribena T/kind Blackcurrant	SmithKline Beecham	600	1.85	30	3	0.5	63			
Ribena T/kind Orange/Trop	SmithKline Beecham	600	1.19	30	3	0.6	75			
Solstis	SmithKline Beecham	250	1.09	215	62	14.9	90			
Lipovitan B3	Taisho Foods	250	0.79	250	44	10.8	92			
Cranberry and Blueberry	Tesco	1000	0.99	250	51	12.1	89			
Cranberry and Raspberry	Tesco	1000	0.99	250	51	12.1	89			
Hi-Juice B/currant Squash	Tesco	1000	2.59	75	298	73.0	92			
NAS Apple Squash	Tesco	1000	0.69	75	10	1.0	38			
NAS Cranberry Juice Drink	Tesco	1000	0.99	250	4	0.7	66			
NAS Squash, most flavours	Tesco	1000	0.69	75	9	0.9	38			
NAS Whole Blackcurrant	Tesco	1000	1.69	75	7	0.7	38			
Squash, ost flavours	Tesco	1000	0.69	75	47	10.6	85			

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Traditional Style Lemon Drink	Safeway	Added vitamin C							
Tropical Fruit Juice Drink	Safeway	Added vitamin C							
Whole Orange Squash	Safeway								
Lucozade Low Calorie	SmithKline Beecham	A revitalising drink with the added energy releasing B vitamins					0.1	5	0.9
Lucozade Original	SmithKline Beecham	Plus energy vitamins					0.1	5	0.9
Lucozade Sport	SmithKline Beecham	With added energy releasing vitamins					0.1	5	0.9
Ribena	SmithKline Beecham	Rich in vitamin C							
Ribena Light	SmithKline Beecham	Rich in vitamin C							
Ribena Smoothie	SmithKline Beecham	Rich in vitamin C							
Ribena T/kind Blackcurrant	SmithKline Beecham								
Ribena T/kind Orange/Trop	SmithKline Beecham								
Solstis	SmithKline Beecham	Rich in vital energy releasing B vitamins			0.3	20	0.3	20	3.6
Lipovitan B3	Taisho Foods	With triple B complex vitamins to help release energy from protein, fat and carbohydrate			1.8	129	2.0	125	8.0
Cranberry and Blueberry	Tesco								
Cranberry and Raspberry	Tesco								
Hi-Juice B/currant Squash	Tesco	Added vitamin C							
NAS Apple Squash	Tesco	Added vitamin C							
NAS Cranberry Juice Drink	Tesco								
NAS Squash, most flavours	Tesco	Added vitamin C							
NAS Whole Blackcurrant	Tesco	Added vitamin C							
Squash, ost flavours	Tesco	Added vitamin C							

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E	Sugar		Fat		Na
					kCal	g	%E	g	%E	g
Tropical Juice Drink	Tesco	1000	0.79	200	50	11.8	89			
Cranberry Juice Drink	Tesco	1000	0.99	250	50	12.1	91			
Tropicana Plus	Tropicana	1000	2.29	250						
Indigo	Vimto	375	0.79	375						
Sweet Soya milk	Co-op	500	0.65	250	45		2	2.1		0.10
makes 5 pints	Co-op	283	1.09	50	463		42	21.0		0.70
Inst dried skim milk	Co-op	198	0.99	50	349		50	0.6		0.60
Marvel	Premier Brands	340	2.05	50	361			0.6	1	
OY Strawberry	Provamel	250	0.45	250	64			2.1	30	0.07
5 Quick Pints	Safeway	285	1.13	24	490			26.0	48	
Dried Skimmed Milk	Safeway	340	1.66	24	349			0.6	2	0.60
Evaporated Milk	Safeway	170	0.34	57	160			9.0	51	0.20
Sweetened Soya Milk	Safeway	1000	1.18	250	44			2.1	43	
Unsweetened Soya Milk	Safeway	1000	0.97	250	35			2.1	54	
Evaporated Milk	Sainsbury	170	0.29	50	675			9.0	12	0.20
Instant Skimmed Milk Powder	Sainsbury	454	1.59		349			0.6	2	0.60
Semi-skim L-life UHT Milk	Sainsbury	1000	0.49	200	47			1.6	31	
Skimmed L-life UHT Milk	Sainsbury	1000	0.49	200	35			0.1	3	
Sweetened Soya (milk)	Sainsbury	1000	1.15		45			2.1	42	
Whole Longlife UHT Milk	Sainsbury	1000	0.49	200	68			4.0	53	0.10
So Good	Sanitarium	1000	1.29	250	50			1.7	31	
So Good Chocolate Flavour	Sanitarium	1000	1.29	250	65			1.7	24	
Calcium Enriched Soya Milk	Tesco	500	0.55	500	45			2.1	42	0.10
Dried Skimmed Milk	Tesco	198	1.15	50	358			1.1	3	0.60
Evaporated Milk	Tesco	410	0.39	40	64			3.6	51	0.10
Make 5	Tesco	283	1.09	50	489			27.0	50	0.60
Value Dried Skimmed Milk	Tesco	454	1.59	50	358			1.1	3	0.60
Dried Skimmed Milk	Waitrose	198	1.75	57	359			1.3	3	0.60
Soyilk (sweetened)	Waitrose	1000	1.15	500	45			2.1	42	

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Tropical Juice Drink	Tesco								
Cranberry Juice Drink	Tesco								
Tropicana Plus	Tropicana	With added calcium							
Indigo	Vimto								
Sweet Soya milk	Co-op								
makes 5 pints	Co-op								
Inst dried skim milk	Co-op		450	56					
Marvel	Premier Brands	Vitamins A and D	575	72					
OY Strawberry	Provamel	Added calcium							
5 Quick Pints	Safeway		*						
Dried Skimmed Milk	Safeway		450	56					
Evaporated Milk	Safeway								
Sweetened Soya Milk	Safeway						0.2	15	
Unsweetened Soya Milk	Safeway						0.2	15	
Evaporated Milk	Sainsbury								
Instant Skimmed Milk Powder	Sainsbury	With added vitamins A & D	336	42					
Semi-skim L-life UHT Milk	Sainsbury						0.2	12	
Skimmed L-life UHT Milk	Sainsbury						0.2	12	
Sweetened Soya (milk)	Sainsbury								
Whole Longlife UHT Milk	Sainsbury	Source of calcium					0.2	11	
So Good	Sanitarium	Added vitamin B6, A, D and riboflavin	120	15			0.3	15	
So Good Chocolate Flavour	Sanitarium	Calcium rich. Added vitamins	120	15			0.3	15	
Calcium Enriched Soya Milk	Tesco	Calcium enriched							
Dried Skimmed Milk	Tesco	With added vitamins A and D	450	56					
Evaporated Milk	Tesco	Vitamin D enriched							
Make 5	Tesco	Fortified with vitamins A, C and D	450	56					
Value Dried Skimmed Milk	Tesco	With added vitamins A and D	575	72					
Dried Skimmed Milk	Waitrose		575	72					
Soyilk (sweetened)	Waitrose	Calcium enriched							

Product name	Manufacturer	Pack size (g or ml)	Price (£)	Serving size (g or ml)	E	Sugar		Fat		Na
					kCal	g	%E	g	%E	g
Action Man Pasta Shapes	Heinz	210	0.29	210	59	4.4	28	0.4	6	0.40
Animal Hospital Pasta Shapes	Heinz	410	0.36	205	68	5.5	30	0.4	5	0.50
Barbie Pasta Shapes	Heinz	210	0.29	210	62	5.1	31	0.4	6	0.40
Rug Rats Pasta Shapes	Heinz	210	0.31	210	61	4.4	27	0.4	6	0.40
Telly Tubbies Pasta Shapes	Heinz	205	0.29	205	61	4.4	27	0.4	6	0.40
Thomas The Tank Engine Pasta Shapes	Heinz	205	0.29	205	59	4.4	28	0.4	6	0.40
Barney Pasta Shapes	HP	213	0.28	213	68	5.5	30	0.4	5	0.50
My Little Pony Pasta Shapes	HP	213	0.28	213	68	5.5	30	0.4	5	0.50
Postman Pat Pasta Shapes	HP	213	0.28	213	68	5.5	30	0.4	5	0.50
TacTix Football Pasta Shapes	HP	410	0.36	205	68	5.5	30	0.4	5	0.50
Tom and Jerry Pasta Shapes with Cheesy Chunks	HP	213	0.39	213	68	5.5	30	0.4	5	0.50
Tom and Jerry Pasta Shapes with Pork Sausages	HP	213	0.47	213	87	3.5	15	2.7	28	0.40
Jelly Tots	Rowntree Nestle	42	0.29	42	346			0.0	0	
Kia Ora Real Fruit Pastilles	Schweppes	30		30	370	85.0	86			
Onkyblok	Onken	200	0.89	100	137	13.7	38	6.2	41	
Smooth Set Yoghurt	Tesco	1500	2.69	125	79	13.0	62	1.3	15	

Product name	Manufacturer	Label statements	A		Thia (B1)		Ribo (B2)		Niacin
			mg	%RDA	mg	%RDA	mg	%RDA	mg
Action Man Pasta Shapes	Heinz	Fortified with vitamins and iron			0.1	9	0.1	9	1.5
Animal Hospital Pasta Shapes	Heinz	With added vitamins and minerals			0.1	8	0.1	8	1.4
Barbie Pasta Shapes	Heinz	Fortified with vitamins and iron			0.1	9	0.1	9	1.5
Rug Rats Pasta Shapes	Heinz	Fortified with vitamins and iron			0.1	9	0.1	9	1.5
Telly Tubbies Pasta Shapes	Heinz	Fortified with vitamins and iron			0.1	9	0.1	9	1.5
Thomas The Tank Engine Pasta Shapes	Heinz	Fortified with vitamins and iron			0.1	9	0.1	9	1.5
Barney Pasta Shapes	HP	With added vitamins and minerals			0.1	9	0.1	9	1.5
My Little Pony Pasta Shapes	HP	With added vitamins and minerals			0.1	9	0.1	9	1.5
Postman Pat Pasta Shapes	HP	With added vitamins and minerals			0.1	9	0.1	9	1.5
TacTix Football Pasta Shapes	HP	With added vitamins and minerals			0.1	9	0.1	9	1.5
Tom and Jerry Pasta Shapes with Cheesy Chunks	HP	With added vitamins and minerals			0.1	9	0.1	9	1.5
Tom and Jerry Pasta Shapes with Pork Sausages	HP	With added vitamins and minerals			0.1	9	0.1	9	1.5
Jelly Tots	Rowntree Nestle	With real fruit juice and added vitamin C							
Kia Ora Real Fruit Pastilles	Schweppes	With vitamins A, C and E	435	54					
Onkyblok	Onken	With added vitamins and calcium					0.2	30	
Smooth Set Yoghurt	Tesco	With added vitamins	120	15	0.2	15	0.2	2	

Product name	Manufacturer	%RDA	B6		Folate		B12		Pantoth	
			mg	%RDA	µg	%RDA	µg	%RDA	mg	%RDA
Action Man Pasta Shapes	Heinz	8					0.1	9		
Animal Hospital Pasta Shapes	Heinz	8					0.1	8		
Barbie Pasta Shapes	Heinz	8					0.1	9		
Rug Rats Pasta Shapes	Heinz	8					0.1	9		
Telly Tubbies Pasta Shapes	Heinz	8					0.1	9		
Thomas The Tank Engine Pasta Shapes	Heinz	8					0.1	9		
Barney Pasta Shapes	HP	8					0.1	9		
My Little Pony Pasta Shapes	HP	8					0.1	9		
Postman Pat Pasta Shapes	HP	8					0.1	9		
TacTix Football Pasta Shapes	HP	8					0.1	9		
Tom and Jerry Pasta Shapes with Cheesy Chunks	HP	8					0.1	9		
Tom and Jerry Pasta Shapes with Pork Sausages	HP	8					0.1	9		
Jelly Tots	Rowntree Nestle									
Kia Ora Real Fruit Pastilles	Schweppes									
Onkyblok	Onken						0.7	100		
Smooth Set Yoghurt	Tesco						0.2	15		

Appendix 2:

List of 262 products examined

with details of their nutrient content per serving

Product Name	Manufacturer	size (g/ml)	Price	servin g size (g/ml)	A	Thia (B1)	Ribo (B12)	Niacin	B6	Folat	B12	Panto	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD
Barbie Bite Size Biscuits	Burtons	140	0.69	28		20	20	20	20	20	20		20					20				
Barbie Chocolate Biscuit Bars	Burtons	125	0.46	25		20	20	20	20	20	20		20					20				
Barbie Strawberry Biscuits	Burtons	150	0.26	25		20	20	20	20	20	20		20					20				
Jammie Dodgers	Burtons	150	0.49	38		20	21	20	20	20	20							20				
Elmo's Dominoes	Foxes	125	0.65	19																	iodine	
Jammy Yum Yums	Jacobs	150	0.55	30			20	20	20	20						20		20				
Vitalinea Chocomousse	Jacobs	175	0.79	44			22	22		22						22		22				
vitalinea jam and cream biscuits	Jacobs	150	0.69	30			20	20	20	20						20		20				
Vitalinea lemon crunch biscuits	Jacobs	85	0.46	29		7		7							7							
Vitalinea summer fruit shorties	Jacobs	200	0.36	29			19	19	19	19						19		19				
Yum Tums Choc Gems	Jacobs	180	0.99	30			20	20	20	20						20						
Yum Tums filled cake bars	Jacobs	150	0.99	30			6								6							
Yum Tums happy faces	Jacobs		0.59	30			20	20	20	20						20						
Yum Tums Iced Gems	Jacobs	180	0.99	30			20	20	20	20						20						
Yum Tums Iced Licky Biscuits	Jacobs	200	1.49	20									8									
Clown Biscuits	Tesco	200	0.99	25		29	11	5		14			13	55								
Reduced fat crispy orange bars	Tesco	110	0.67	22	20.02								20.24		11							
Mighty White	Bakeries	800	0.63	40		17		16		24	40											
Softgrain Bread	Tesco	800	0.39	36		28		25		22	40											
Healthier White Sliced Bread	Waitrose	800	0.63	40		31		28		25	44											
Healthy Loaf (white)	Warburtons	800	0.77	38		6		6		6	6					19		6				
Healthy Loaf (wholemeal)	Warburtons	800	0.77	38		6.46		6.46		6.46	6.46					19		6.46				
New Yorker B/fast Bar	Hero	150	1.29	25		25	25	25	25	25	25					25						
Chocolate Squares R/Krispie	Kelloggs	22	0.29	22		?	?	?		?	?							?				
Coco Pops Cereal + Milk Bar	Kelloggs	20	0.25	20		17	17	17	17	17	17					18		17				

Product Name	Manufacturer	size (g/ml)	Price	servin g size (g/ml)	A	Thia (B1)	Ribo (B12)	Niacin	B6	Folat	B12	Panto	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD
Frosties cereal and milk bar	Kelloggs	27	25	27		18	18	18	18	18	18					24		18				
M/mallow Squares R/Krispie	Kelloggs	22	0.29	22		?	?	?		?	?							?				
Nutrigrain Strawberry	Kelloggs	37	0.29	37		25	25	25	25	25	25					25		17				
Nutrigrain Cherry	Kelloggs	37	0.29	37		25	25	25	25	25	25					25		17				
Nutrigrain Blueberry	Kelloggs	37	0.29	37		25	25	25	25	25	25					25		17				
Nutrigrain Apple	Kelloggs	37	0.29	37		25	25	25	25	25	25					25		17				
Pop tarts	Kelloggs	300	1.25	50		17	17	17	17	17	17											
Smacks cereal and milk bar	Kelloggs	23	25	23		17	17	17	17	17	17					21		17				
Harvest bar (choc chip)	Quaker	110	0.89	22		17	17											18				
Harvest bar (white choc chip)	Quaker	110	0.89	22		17.38	16.72											17.82				
Dennis Chocolate Scoffers	'Beano'	275	1.09	30		28	28	27		38	51			28				17				
Healthwise Bran flakes	Kelloggs	500	1.35	30		18	20	24	35	50	50		33	26	26			51				
Sugar Puffs	Quaker	450	1.79	30		21	19	17										17				
Grape Nuts	Birds	450	1.75	30	14	13	13	14														
Bran Flakes	Co-op	500	1.25	40		28	48	33		50								52				
Coco Rice	Co-op	500	1.79	40		29	38	36		50	68			22				19				
Corn Flakes	Co-op	500	0.69	40		33	33	33	33	33	33	33						20		biotin	33	
Crisp Rice Cereal	Co-op	440	1.25	40		34	32	33	34	33	33	33						20		biotin	32	
Crunchy rice and wheat	Co-op	500		40		66	66	66	66	66	66	66						66				
Frosted Flakes	Co-op	500	1.19	40		33	33	33	33	33	33	33						20		biotin	33	
Fruit with Fibre	Co-op	500	1.39	40		28	32	28		50								28				
Golden Puffs	Co-op	450	1.39	30		30		30		30	30			30								
Hi-fibre bran	Co-op	500	99																			
Malt Crunchies	Co-op	500	1.15	45		38	38	38	38	38	38	38						38				
Wholewheat biscuit cereal	Co-op	48bix		37.5		32	32	32		32								32				

Product Name	Manufacturer	size (g/ml)	Price	servin g size (g/ml)	A	Thia (B1)	Ribo (B12)	Niacin	B6	Folat	B12	Panto	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD/
all bran bite size	Kelloggs	400	1.35	45		25	25	25	25	25	25							25				
all bran buds	Kelloggs	625	1.39	40		26	26	26	26	26	26							26				
All Bran Plus	Kelloggs	400	1.39	45		29	29	29	29	29			20	29	20	20	34	29	16			
Choco Cornflakes	Kelloggs	500	0.99	30		26	26	26	26	26	26							17				
Cocoa pops	Kelloggs	600	2.29	30		26	26	26	26	26	26							17				
Common Sense	Kelloggs	500	2.25	40		26	26	26	26	26	26							18				
Corn Pops	Kelloggs	450	1.9	30		26	26	26	26	26	26			26				17				
Cornflakes	Kelloggs	500	0.99	30		26	26	26	26	50	26							17				
Country Store	Kelloggs	2000	3.89	40		26	26	26	26	26	26							18				
Crispix	Kelloggs	300	1.29	30		26	26	26	26	26	26											
Crunchy Nut Cornflakes	Kelloggs	500	1.65	30		26	26	26	26	26	26							17				
Frosted Wheats	Kelloggs	500	1.69	40		26	26	26	26	26	26							18				
Frosties	Kelloggs	500	1.45	30		50	26	50	50	26	26							17				
Helthwise Sultana Bran	Kelloggs	500	1.55	40		18	20	24	36	50	50		34	26	26			52				
Honey Nut Loops	Kelloggs	375	1.59	30		26	26	26	26	26	26			26				17				
Honey Rice Krispies	Kelloggs	350	1.59	30		26	26	26	26	26	26			26				17				
Just Right	Kelloggs	500	1.99	40		26	26	26	26	26	26							26				
Multigrain Start	Kelloggs	375	1.98	40		34	34	34	34	34	34		34	34	34			34	34			
Optima Fruit and Fibre	Kelloggs	500	1.65	40		26	26	26	26	26	26	26						26		biotin	26	
Raisin Wheats	Kelloggs	500	1.95	40		26	26	26	26	26	26							18				
Rice Krispies	Kelloggs	450	1.49	30		26	26	26	26	50	26							17				
Ricicles	Kelloggs	450	1.95	30		26	26	26	26	26	26			26				17				
Special K	Kelloggs	500	2.19	30		50	50	50	50	50	50		50					50				
Bran Sticks	M + S	500	0.99	40		26	26	26	26	26	26				18	18		26				
Cornflakes	M + S	500	0.99	30		26	26	26	26	26	26	26						15		biotin		

Product Name	Manufacturer	size (g/ml)	Price	servin g size (g/ml)	A	Thia (B	Ribo (B	Niacir	B6	Folat	B12	Panto	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD/
Crispy Rice	M + S	440	1.39	30		26	26	26	26	26	26	26						15		biotin	26	
Crunchy Puffs	M + S	450	1.39	30		20		20		20	20											
Frosted Flakes	M + S	500	1.49	30		26	26	26	26	26	26	26						15		biotin	26	
Fruit and Flake	M + S	500	1.89	30		35	35	35	35	35	35		35					35				
Multiflakes	M + S	500	1.89	30		50	50	50	50	50	50		50					50				
Clusters	Nestle	500	2.25	30		26	26	26	26	26	26	26	26					26				
Cheerios	Nestle	375	1.45	30		26	26	26	26		26	26	26									
Cinammon Grahams	Nestle	375	1.79	30		26	26	26	26	26	26	26	26					26				
Coco Shreddies	Nestle	500	1.69	45		18	18	18	18	18	18	18		18				18				
fibre 1	Nestle	500	1.49	30		26	26	26	26	26	26	26	26			6		26				
Frosted Shreddies	Nestle	500	1.69	45		18	18	18	18	18	18	18		18				18				
Golden Grahams	Nestle	375	1.79	30		26	26	26	26	26	26	26	26					26				
Golden Nuggets	Nestle	375	1.59	30		26	26	26	26	26	26	26	26					26				
Honey Nut Cheerios	Nestle	375	1.65	30		26	26	26	26	26	26	26	26					26				
Nesquik Cereal	Nestle	375	1.65	30		26	26	26	26	26	26	26	26					26				
Shreddies	Nestle	500	1.59	45		25	25	25	25	25	25	25		25				25				
Choco Puffs	Quaker	375	1.89	35		25	22	20										20				
Cornflakes	Safeway	500	0.89	30		30	30	30	30	30	30	30		30				30				
Fibre Bran	Safeway	750	1.35	50		50	50	50	50	100	50	50		50				50				
Frosted Flakes	Safeway	500	1.19	30		30	30	30	30	30	30	30		30				30				
Fruit and Fibre	Safeway	500	1.59	30		26	26	26	26	26	26	26						26				
Get Up and Go	Safeway	500	2.05	50		25	25	25	25	25	25	25	25	25	25	6	12					
Malt Bites	Safeway	500	1.12	40		40	40	40	40	40	40	40		40				40				
Wheat Bisks	Safeway	444	1.09	37		31	31	31		31								31				
choco snaps	Sainsbury	500	1.99	30		30	30	30	30	30	30	30		30				30				

Product Name	Manufacturer	size (g/ml)	Price (g/ml)	servin g size (g/ml)	A	Thia (B1)	Ribo (B12)	Niacir (B3)	B6	Folat (B9)	B12	Panto (B5)	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD/
corn flakes	Sainsbury	500	0.89	30		30	30	30	30	60	30	30		30				30				
economy cornflakes	Sainsbury	500	0.47	30		30	30	30		30	30			30				19				
frosted flakes	Sainsbury	500	1.15	30		30	30	30	30	30	30	30		30				30				
fruit and fibre	Sainsbury	500	1.39	30		30	30	30	30	30	30	30		30				17				
healthy balance	Sainsbury	500	1.99	30		50	50	50	50	50	50	50						50				
instant hot oat cereal	Sainsbury	750	1.41	30		26	26	26	26	26	27	26				45		26				
oat and bran flakes	Sainsbury	500	1.19	30		30	30	30	30	30	30		17	17				17				
rice pops	Sainsbury	440	1.29	30		30	30	30	30	30	30	30		30				30				
sultana bran	Sainsbury	500	1.35	30		21	21	21	21	42	21	21		21				21				
wholewheat biscuits	Sainsbury	860	1.93	36		31	31	31		31								31				
wholewheat miniflakes	Sainsbury	750	1.19	30		30	30	30		30								17				
Sensation honey and pecan	Seven Day	375	1.65	30		26	24	25	26	25	24	25						17		biotin	24	
Sensation vanilla and almond	Seven Day	275	1.65	30		26	24	25	26	25	24	25						17		biotin	24	
Triples	Seven Day	500	1.69	30		26	24	25	26	25	24	25						17		biotin	24	
Bran Flakes	Tesco	500	1.25	30		30	30	30	30	60	30	30		30				30				
Breakfast Boulders	Tesco	375	0.99	30		30	30	30	30	30	30	30		30				30				
Choco Snaps	Tesco	375	1.4	30		30	30	30	30	30	30	30		30				30				
Chocoflakes	Tesco	500	1.59	30		30	30	30	30	38	30	30		30				30				
Corn Flakes	Tesco	500	0.89	30		30	30	30	30	60	30	30		30				30				
Frosted Flakes	Tesco	750	1.19	30		30	30	30	30	30	30	30		30				30				
Fruit and Fibre	Tesco	500	1.55	40		34	35	34	34	34	36	34						34				
Golden Puffs	Tesco	450	1.15	30		30		30		30	30			30								
High Fibre Bran	Tesco	500	1.05	40		28	38	36	36					22								
Honet Nut Cornflakes	Tesco	500	1.35	30		30	5	1	120	0	2			30				30				
I Love Teddy Crisp	Tesco	250	1.09	25		25	25	25	25	25	25	25			25							

Product Name	Manufacturer	size (g/ml)	Price	servin g size (g/ml)	A	Thia (B1)	Ribo (B12)	Niacir (B3)	B6	Folat (B9)	B12	Panto (B5)	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD/
instant hot oat cereal	Tesco	500	1.02	30		26	26	26	26	26	26	26				45		26				
Malt Wheats	Tesco	500	1.05	45		39	39	38	38		2							38				
Pingu Crisps	Tesco	250	1.09	25		25	25	25	25	25	25	25			25							
Rice Snaps	Tesco	440	1.19	30		30	30	30	30	30	30	30		30				30				
Sultana Bran	Tesco	750	1.79	30		21	21	21	21	42	21	21		21				21				
Value Cornflakes	Tesco	500	0.47	30																		
Value Frosted Flakes	Tesco	500	0.63	30																		
Wheat Biscuits	Tesco	444	1.05	37		32	32	31		31								31				
Bran Flakes	Waitrose	500	1.15	30		30	30	30	30	30	30	30		30				30				
Cornflakes	Waitrose	500	1.35	30		30	30	30	30	30	30	30		30				30				
Frosted Flakes	Waitrose	500	1.15	30		30	30	30	30	30	30	30		30				30				
Fruit and Fibre	Waitrose	500	1.39	30		21	21	21	21	30	21	21		21				21				
High Fibre Bran	Waitrose	500	1.05	40		14	14	14	14	14	14	14						14				
Rice Pops	Waitrose	440	1.29	30		30	30	30	30	30	30	30		30				30				
Special Choice	Waitrose	500	1.85	30		15	15	15	15	15	15	15						15				
Wholewheat biscuits	Waitrose	430	1.05	36		31	31	31		31								31				
Advantage	Weetabix	500	1.25	30		26	26	26	26	26	26	26						26				
Alpen Nutty Crunch	Weetabix	500	1.85	40																		
Crunchy Bran	Weetabix	375	1.35	40		34	34	34	34	34	34	34						34				
Fruitibix	Weetabix	500	1.79	40		34	34	34		34								34				
Readybrek	Weetabix	500	1.23	40		34	34	34	34	34	34	34				60		34				
Readybrek with Chocolate	Weetabix	225	1.05	40		34	34	34	34	34	34	34				60		34				
Weetabix	Weetabix	444	1.17	37		31	31	31		31								31				
Weetos	Weetabix	375	1.55	30		26	26	26	26	26	26	26						26				
perfect balance	weight watch	375	1.65	30		49.5	49.5	49.5	49.5	49.8	49.5							17.1				

Product Name	Manufacturer	size (g/ml)	Price	servin g size (g/ml)	A	Thia (B1)	Ribo (B12)	Niacin (B3)	B6	Folat (B9)	B12	Panto (B5)	C	D	E	Ca	Mg	Fe	Zn	Misc		
					%RD	%RDA	%RDA	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	%RD	Subst	%RD
OY Strawberry	Provamel	250	0.45	250												23						
5 Quick Pints	Safeway	285	1.13	24																		
Dried Skimmed Milk	Safeway	340	1.66	24	13									8								
Evaporated Milk	Safeway	170	0.34	57										30								
Sweetened Soya Milk	Safeway	1000	1.18	250			38			125				38	38	38						
Unsweetened Soya Milk	Safeway	1000	0.97	250			38			125				38	38	38						
evaporated milk	Sainsbury	170	0.29	50										26								
Instant skimmed milk powder	Sainsbury	454	1.59																			
semi-skim l-life UHT milk	Sainsbury	1000	0.49	200			24			46												
skimmed l-life UHT milk	Sainsbury	1000	0.49	200			24			80												
sweetened soya (milk)	Sainsbury	1000	1.15																			
whole longlife UHT milk	Sainsbury	1000	0.49	200			21			32												
So Good	Sanitarium	1000	1.29	250	38		38			100				43		40						
So Good Chocolate Flavour	Sanitarium	1000	1.29	250	38		38			100				43		40						
Calcium Enriched Soya Milk	Tesco	500	0.55	500												90						
Dried Skimmed Milk	Tesco	198	1.15	50	28									16								
Evaporated Milk	Tesco	410	0.39	40										8								
Make 5	Tesco	283	1.09	50	28								21	100								
Value Dried Skimmed Milk	Tesco	454	1.59	50	36									15								
Dried Skimmed Milk	Waitrose	198	1.75	57	41									17								
Soyilk (sweetened)	Waitrose	1000	1.15	500												90						
Action Man Pasta Shapes	Heinz	210	0.29	210		19	19	17		19								19		iodine	19	
Animal Hospital Pasta Shapes	Heinz	410	0.36	205		16	16	16		16								16		iodine	16	
Barbie Pasta Shapes	Heinz	210	0.29	210		19	19	17		19								19		iodine	19	
Rug Rats Pasta Shapes	Heinz	210	0.31	210		19	19	17		19								19		iodine	19	

