

# First supplement to McCance and Widdowson's The Composition of Foods

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**Amino acids, mg per 100 g food**  
**Fatty acids, g per 100 g food**

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## Preface to the first supplement

In the 4th edition of McCance and Widdowson's 'The Composition of Foods' (Paul and Southgate 1978), amino acids and fatty acids are given, in sections 2 and 3, as mg/g nitrogen and g/100 g fatty acids respectively. This method enables the data to be presented in a concise form, as foods with the same amino acid or fatty acid composition can be given as a single entry. However, it is a straightforward procedure to calculate by computer the amino acid and fatty acid composition of each food given in Section I of the book, and this has accordingly been done for all foods where data are available. The following tables are intended as a supplement to 'The Composition of Foods', to which reference should be made for guidance on the description of samples, sources of the data, and the relevant cross references between the values in these tables and sections 1-3 of the tables in 'The Composition of Foods'.

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# Introduction

## Method of calculation

The values for amino acids and fatty acids per 100 g food have been calculated as described on pages 348–9 of 'The Composition of Foods'. For convenience, these pages are repeated below.

Amino acids per 100 g are obtained by multiplying the total nitrogen (g/100 g, given in section 1) by the amino acids composition (mg amino acid per g N) of the appropriate item in section 2 of the fourth edition of 'The Composition of Foods'.

For example:

Item 252 **Beef rump steak** grilled, lean and fat  
Total N = 4.36 g/100 g  
Corresponding item in amino acid section, 2237

|                               | Amino acids |      |      |     |
|-------------------------------|-------------|------|------|-----|
|                               | Ile         | Leu  | Lys  | etc |
| Amino acids in 2237 (mg/gN)   | 320         | 500  | 570  |     |
| Amino acids in 252 (mg/100 g) |             |      |      |     |
| = (4.36 × values in 2237)     | 1395        | 2180 | 2485 | etc |

The values for cooked dishes are based on the information given in part 2 of Appendix 5 ('The Composition of Foods', 4th edition). The amino acids in the ingredients are multiplied by the amount of total nitrogen contributed by the ingredients to 100 g of the dish.

For example:

Item 116 **Pancakes**

| Ingredients | Item in section 2 | Total N contributed by ingredients |
|-------------|-------------------|------------------------------------|
| Flour       | 2011              | 0.43                               |
| Milk        | 2123              | 0.32                               |
| Egg         | 2165              | 0.25                               |

The amino acids in the cooked dish are derived as follows:

|                                      | Amino acids |     |     |     |
|--------------------------------------|-------------|-----|-----|-----|
|                                      | Ile         | Leu | Lys | etc |
| From flour (0.43 × values in 2011)   | 103         | 189 | 52  |     |
| milk (0.32 × values in 2123)         | 112         | 205 | 163 |     |
| egg (0.25 × values in 2165)          | 88          | 130 | 98  |     |
| Amino acids in item 116 (mg/100 g) = | 303         | 524 | 313 | etc |

Fatty acids per 100 g are calculated in a similar way using the compositions given in section 3, *except* that the factor giving the proportion of fatty acids in the total fat must also be used in the calculation (see p 17 of 'The Composition of Foods', 4th edition).

For example:

Item 252 **Beef rump steak** grilled, lean and fat

Fat 12.1 g/100 g; factor 0.935

Corresponding item in fatty acid section 3240

|                                                                            | Fatty acids |      |      |     |
|----------------------------------------------------------------------------|-------------|------|------|-----|
|                                                                            | 14:0        | 15:0 | 16:0 | etc |
| Fatty acids in item 3240 (g/100 g total fatty acids)                       | 3.2         | 0.6  | 26.9 |     |
| Fatty acids in item 252 (g/100 g)<br>= (12.1 × 0.935 × values in 3240/100) | 0.36        | 0.07 | 3.04 |     |

For cooked dishes the values in the fatty acid section are multiplied by values for the fatty acids contributed by the ingredients of the dish.

For example:

Item 116 **Pancakes**

| Ingredient | Item in section 3 | Fat contributed | Factor |
|------------|-------------------|-----------------|--------|
| Flour      | 3008              | 0.29            | 0.70   |
| Milk       | 3123              | 2.20            | 0.945  |
| Eggs       | 3165              | 1.39            | 0.830  |
| Lard       | 3185              | 12.42           | 0.956  |

The fatty acids in the cooked dish are derived as follows:

|                                               | Fatty acids |      |      |
|-----------------------------------------------|-------------|------|------|
|                                               | 14:0        | 16:0 | 18:0 |
| From flour (0.29 × 0.70 × values in 3008/100) | Tr          | 0.04 | Tr   |
| milk (2.20 × 0.945 × values in 3123/100)      | 0.23        | 0.54 | 0.23 |
| eggs (1.39 × 0.830 × values in 3165/100)      | Tr          | 0.33 | 0.11 |
| lard (12.42 × 0.956 × values in 3185/100)     | 0.19        | 3.18 | 1.85 |
| Fatty acids in 116 (g/100 g)                  | 0.42        | 4.09 | 2.19 |

The calculation has been carried out for all food items listed in Appendix 5 of 'The Composition of Foods' for which a code number is given for use in the amino acid or fatty acid sections.

## Fatty acids additional calculations

### Estimated values

In section 3 of 'The Composition of Foods', 4th edition, in a small number of cases no information could be given for a particular fatty acid, and a dash showed these situations. For the present calculation, estimated values, based on the amounts in related foods, have been inserted onto the computer file and the results obtained are indicated in parenthesis.

### Joint headings

In some fats and oils, and some meat and fish, values are given for the sum of two or more fatty acids in section 3, e.g. 20:4 + 20:5. For the present calculation, individual values have been assigned to each fatty acid.

### Factor for calculating fatty acid content of fat

A factor has been used for each fatty acid code, and these are given in the table below. These are based on the factors given in table 5 (p. 17) of 'The Composition of Foods'.

### Variations in fatty acid content

For a number of foods, marked 'a' in Appendix 5, no calculation is possible as the fatty acid content will depend on the fat used in cooking. In addition, for some foods, the fatty acid content will depend on variations in the fats used in manufacture. These are marked in the following tables and due attention should be taken in the interpretation of the data. Other variations are noted in section 3, to which reference should be made. For *margarine* in particular, the recipe calculations have been carried out using the fatty acid values for margarine and hard animal and vegetable fats (3188). Where other margarines are used, the fatty acid composition will be different.

**Table** Factors for multiplying fat content of food by in calculation of fatty acids per 100 g food. Factor given for each fatty acid code.

| Code           | Factor | Code                   | Factor | Code        | Factor | Code                      | Factor |
|----------------|--------|------------------------|--------|-------------|--------|---------------------------|--------|
| <b>Cereals</b> |        | <b>Fats &amp; Oils</b> |        | 3394        | 0.932  | <b>Vegetables</b>         |        |
| 3002           | 0.72   | 3140                   | 0.945  | 3395        | 0.932  | 3562                      | 0.80   |
| 3005           | 0.82   | 3183                   | —      | 3396        | 0.932  | 3569                      | 0.80   |
| 3008           | 0.70   | 3194                   | 0.956  | 3399        | 0.80   | 3597                      | 0.80   |
| 3017           | 0.94   | 3196                   | 0.942  | 3404        | 0.80   | 3609                      | 0.80   |
| 3019           | 0.85   | 3197                   | —      | 3408        | 0.953  | 3620                      | 0.80   |
| 3021           | 0.72   | 3206                   | 0.956  | 3411        | 0.953  | 3634                      | 0.80   |
| 3030           | 0.80   |                        |        | 3425        | 0.953  | 3639                      | 0.80   |
| 3033           | 0.80   | <b>Meat</b>            |        |             |        | 3657                      | 0.80   |
| 3058           | 0.95   | 3209                   | 0.932  | <b>Fish</b> |        | 3664                      | 0.80   |
| 3060           | 0.72   | 3240                   | 0.935  | 3438        | 0.70   | 3669                      | 0.80   |
| 3061           | 0.95   | 3269                   | 0.935  | 3451        | 0.70   | <b>Fruit</b>              |        |
| 3063           | 0.95   | 3299                   | 0.932  | 3458        | 0.70   | 3675                      | 0.80   |
| 3064           | 0.95   | 3314                   | 0.945  | 3461        | 0.70   | 3692                      | 0.956  |
| 3066           | 0.72   | 3328                   | 0.945  | 3466        | 0.70   | 3693                      | 0.80   |
| 3067           | 0.95   | 3332                   | 0.945  | 3471        | 0.70   | <b>Nuts</b>               |        |
| 3068           | 0.95   | 3334                   | 0.945  | 3474        | 0.70   | 3822                      | 0.956  |
| 3069           | 0.95   | 3336                   | 0.945  | 3482        | 0.90   | 3826                      | 0.956  |
| 3070           | 0.95   | 3340                   | 0.945  | 3491        | 0.90   | 3828                      | 0.956  |
| 3072           | 0.95   | 3350                   | 0.945  | 3494        | 0.90   | 3830                      | 0.956  |
| 3074           | 0.95   | 3356                   | 0.561  | 3498        | 0.90   | 3832                      | 0.942  |
| 3077           | 0.95   | 3358                   | 0.789  | 3501        | 0.95   | 3835                      | 0.956  |
| 3079           | 0.95   | 3360                   | 0.789  | 3502        | 0.90   | 3838                      | 0.956  |
| 3083           | 0.95   | 3364                   | 0.747  | 3503        | 0.90   | 3839                      | 0.956  |
| 3107           | 0.945  | 3366                   | 0.747  | 3508        | 0.95   | <b>Chocolate Products</b> |        |
| 3108           | 0.956  | 3368                   | 0.747  | 3510        | 0.90   | 3857                      | 0.950  |
| <b>Milk</b>    |        | 3371                   | 0.741  | 3513        | 0.90   | 3858                      | 0.956  |
| 3123           | 0.945  | 3373                   | 0.741  | 3517        | 0.70   | 3868                      | 0.956  |
| 3137           | 0.945  | 3375                   | 0.741  | 3526        | 0.70   | 3873                      | 0.956  |
| 3138           | 0.956  | 3377                   | 0.741  | 3532        | 0.70   |                           |        |
| <b>Eggs</b>    |        | 3379                   | 0.741  | 3535        | 0.70   |                           |        |
|                |        | 3384                   | 0.75   | 3537        | 0.70   |                           |        |
| 3165           | 0.83   | 3391                   | 0.80   | 3550        | 0.70   |                           |        |

**Errata in the 4th edition of 'The Composition of Foods'**

A number of errata have come to light during the course of calculations; these are:

*Section 3: fatty acid composition*

| Food code | Food                                    | Fatty acids                |
|-----------|-----------------------------------------|----------------------------|
| 3063      | <b>Biscuits, digestive</b><br>chocolate | 22:1 for 1.6 read 1.0      |
| 3068      | <b>Biscuits, sandwich</b>               | 20:1–20:5 for 1.4 read 1.0 |
| 3072      | <b>Biscuits, wafers</b><br>filled       | Other for 10:0 read 8:0    |

*Appendix 5: Key to the use of amino acid and fatty acid numbers  
Part 1*

| Food Code     | Food                                             | Amino acids | Fatty acids        |
|---------------|--------------------------------------------------|-------------|--------------------|
| 4             | <b>Bemax</b>                                     |             | for 3207 read 3008 |
| <i>Insert</i> |                                                  |             |                    |
| 188           | <b>Margarine</b> hard, animal and vegetable oils | 2123        | 3188               |
| 189           | Hard, vegetable oils only                        | 2123        | 3189               |
| 190           | Soft, animal and vegetable oils                  | 2123        | 3190               |
| 191           | Soft, vegetable oils only                        | 2123        | 3191               |
| 192           | Polyunsaturated                                  | 2123        | 3192               |
| 620–629       | <b>Peas</b>                                      |             | for 3621 read 3620 |

*Part 2*

| Food code | Food                           | Section 2 code     | Section 3 code | Fat contributed per 100 g |
|-----------|--------------------------------|--------------------|----------------|---------------------------|
| 90        | <b>Pastry, choux</b><br>cooked |                    | 3187           | for 5.4 read 15.4         |
| 428       | <b>Bolognese sauce</b>         | for 2595 read 2594 |                |                           |
| 548       | <b>Fish pie</b>                | for 2638 read 2639 |                |                           |

**Arrangement of the tables**

*Amino acids*

The amino acids are given, by their customary abbreviations, in the same order as in Section 2 of 'The Composition of Foods'.

*Fatty acids*

A larger range of fatty acids is set out than appeared in Section 3 of 'The Composition of Foods'. Where a particular fatty acid that appears in one part of the table is not listed in another part this indicates that that particular fatty acid is not present in the food group. The three groups of fatty acids—saturated, mono-unsaturated and polyunsaturated—are spread over two pages. For most foods the saturated fatty acids appear on the first page and the mono- and polyunsaturated on the following page; however for fish the arrangement has had to be altered slightly to take into account the wide range of poly-unsaturated fatty acids present in that food group.

Reference

Paul, A. A. and Southgate, D. A. T. (1978) *McCance and Widdowson's 'The Composition of Foods'* 4th revised edition. London H.M. Stationery Office.

# The tables

## Section 2A Amino acid composition

mg per 100 g food

|               |     |               |     |
|---------------|-----|---------------|-----|
| Isoleucine    | Ile | Arginine      | Arg |
| Leucine       | Leu | Histidine     | His |
| Lysine        | Lys | Alanine       | Ala |
| Methionine    | Met | Aspartic acid | Asp |
| Cystine       | Cys | Glutamic acid | Glu |
| Phenylalanine | Phe | Glycine       | Gly |
| Tyrosine      | Tyr | Proline       | Pro |
| Threonine     | Thr | Serine        | Ser |
| Tryptophan    | Trp |               |     |
| Valine        | Val |               |     |

**N indicates no information available**

| No                                 | Food                    | Ile | Leu  | Lys | Met | Cys | Phe  | Tyr | Thr | Trp | Val  | Arg  | His | Ala  | Asp  | Glu  | Gly  | Pro  | Ser  |
|------------------------------------|-------------------------|-----|------|-----|-----|-----|------|-----|-----|-----|------|------|-----|------|------|------|------|------|------|
| <b>Grains, flours and starches</b> |                         |     |      |     |     |     |      |     |     |     |      |      |     |      |      |      |      |      |      |
| 2                                  | Barley pearl, raw       | 300 | 570  | 220 | 140 | 190 | 430  | 260 | 280 | 140 | 420  | 410  | 180 | 350  | 470  | 1990 | 320  | 920  | 340  |
| 3                                  | boiled                  | 100 | 190  | 74  | 46  | 64  | 150  | 87  | 97  | 46  | 140  | 140  | 60  | 120  | 160  | 680  | 110  | 310  | 120  |
| 4                                  | Bemax                   | 950 | 1910 | 680 | 450 | 730 | 1270 | 860 | 770 | 320 | 1270 | 1320 | 590 | 1040 | 1410 | 7760 | 1140 | 3000 | 1500 |
| 5                                  | Bran wheat              | 470 | 920  | 610 | 220 | 380 | 580  | 450 | 490 | 180 | 690  | 1100 | 430 | 780  | 1140 | 2870 | 900  | 870  | 670  |
| 6                                  | Cornflour               | 21  | 70   | 15  | 11  | 9   | 28   | 22  | 21  | 4   | 27   | 23   | 15  | 42   | 35   | 110  | 21   | 50   | 28   |
| 7                                  | Custard powder          | 21  | 70   | 15  | 11  | 9   | 28   | 22  | 21  | 4   | 27   | 23   | 15  | 42   | 35   | 110  | 21   | 50   | 28   |
| 9                                  | Flour wholemeal (100%)  | 480 | 950  | 340 | 230 | 360 | 630  | 430 | 380 | 160 | 630  | 660  | 290 | 520  | 700  | 3870 | 570  | 1490 | 750  |
| 10                                 | brown (85%)             | 470 | 950  | 320 | 230 | 360 | 630  | 430 | 380 | 160 | 610  | 590  | 290 | 430  | 610  | 4550 | 450  | 1730 | 790  |
| 11                                 | white (72%) breadmaking | 480 | 870  | 240 | 200 | 320 | 590  | 320 | 340 | 140 | 540  | 440  | 260 | 380  | 540  | 4080 | 400  | 1560 | 690  |
| 12                                 | household plain         | 410 | 760  | 210 | 170 | 280 | 520  | 280 | 290 | 120 | 460  | 380  | 220 | 330  | 460  | 3540 | 340  | 1360 | 600  |
| 13                                 | self-raising            | 390 | 720  | 200 | 160 | 260 | 490  | 260 | 280 | 110 | 440  | 360  | 210 | 310  | 440  | 3360 | 330  | 1290 | 570  |
| 14                                 | patent (40%)            | 450 | 830  | 230 | 190 | 300 | 570  | 300 | 320 | 130 | 510  | 420  | 250 | 360  | 510  | 3890 | 380  | 1490 | 660  |
| 15                                 | Macaroni raw            | 580 | 1060 | 290 | 240 | 390 | 720  | 390 | 410 | 170 | 650  | 530  | 310 | 460  | 650  | 4970 | 480  | 1900 | 840  |
| 16                                 | boiled                  | 180 | 330  | 90  | 75  | 120 | 230  | 120 | 130 | 53  | 200  | 170  | 98  | 140  | 200  | 1550 | 150  | 590  | 260  |
| 17                                 | Oatmeal raw             | 510 | 950  | 490 | 230 | 360 | 660  | 450 | 450 | 170 | 680  | 830  | 280 | 590  | 1020 | 2780 | 620  | 680  | 620  |
| 18                                 | Porridge                | 58  | 110  | 55  | 26  | 41  | 74   | 50  | 50  | 19  | 77   | 94   | 31  | 67   | 120  | 310  | 70   | 77   | 70   |

| No                                        | Food                   | Ile  | Leu  | Lys  | Met | Cys | Phe  | Tyr  | Thr  | Trp | Val  | Arg  | His  | Ala  | Asp  | Glu  | Gly  | Pro  | Ser  |
|-------------------------------------------|------------------------|------|------|------|-----|-----|------|------|------|-----|------|------|------|------|------|------|------|------|------|
| <b>Grains, flours and starches, contd</b> |                        |      |      |      |     |     |      |      |      |     |      |      |      |      |      |      |      |      |      |
| 19                                        | Rice polished raw      | 260  | 560  | 250  | 140 | 110 | 330  | 270  | 230  | 87  | 390  | 510  | 160  | 390  | 650  | 1310 | 290  | 320  | 320  |
| 20                                        | boiled                 | 89   | 190  | 85   | 48  | 37  | 110  | 93   | 78   | 30  | 130  | 170  | 56   | 130  | 220  | 440  | 100  | 110  | 110  |
| 21                                        | Rye flour (100%)       | 310  | 550  | 290  | 130 | 170 | 390  | 170  | 290  | 98  | 420  | 410  | 200  | 380  | 630  | 2110 | 380  | 830  | 340  |
| 23                                        | Semolina raw           | 450  | 820  | 220  | 190 | 300 | 560  | 300  | 320  | 130 | 510  | 410  | 240  | 360  | 510  | 3850 | 370  | 1480 | 660  |
| 24                                        | Soya flour full fat    | 1810 | 3160 | 2580 | 520 | 650 | 2000 | 1290 | 1550 | 520 | 1940 | 2900 | 1030 | 1740 | 4710 | 7550 | 1680 | 2190 | 2060 |
| 25                                        | low fat                | 2220 | 3890 | 3180 | 640 | 790 | 2460 | 1590 | 1910 | 640 | 2380 | 3570 | 1270 | 2140 | 5800 | 9290 | 2060 | 2700 | 2540 |
| 26                                        | Spaghetti raw          | 570  | 1050 | 290  | 240 | 380 | 720  | 380  | 410  | 170 | 650  | 530  | 310  | 450  | 650  | 4920 | 480  | 1890 | 840  |
| 27                                        | boiled                 | 180  | 330  | 89   | 74  | 120 | 220  | 120  | 130  | 52  | 200  | 160  | 96   | 140  | 200  | 1520 | 150  | 590  | 260  |
| 28                                        | canned in tomato sauce | 72   | 130  | 36   | 30  | 48  | 90   | 48   | 51   | 21  | 81   | 66   | 39   | 57   | 81   | 620  | 60   | 240  | 110  |
| <b>Bread and rolls</b>                    |                        |      |      |      |     |     |      |      |      |     |      |      |      |      |      |      |      |      |      |
| 30                                        | Bread, wholemeal       | 320  | 630  | 230  | 150 | 240 | 420  | 290  | 260  | 110 | 420  | 440  | 200  | 350  | 470  | 2580 | 380  | 1000 | 500  |
| 31                                        | brown                  | 330  | 660  | 220  | 160 | 250 | 440  | 300  | 270  | 110 | 420  | 410  | 200  | 300  | 420  | 3150 | 310  | 1200 | 550  |
| 32                                        | hovis                  | 360  | 710  | 240  | 170 | 270 | 480  | 320  | 290  | 120 | 460  | 440  | 220  | 320  | 460  | 3430 | 340  | 1310 | 600  |
| 33                                        | white                  | 340  | 620  | 170  | 140 | 220 | 420  | 220  | 240  | 98  | 380  | 310  | 180  | 270  | 380  | 2880 | 280  | 1110 | 490  |

| No                       | Food                   | Ile  | Leu  | Lys | Met | Cys  | Phe  | Tyr  | Thr  | Trp | Val  | Arg  | His  | Ala  | Asp  | Glu  | Gly  | Pro  | Ser  |
|--------------------------|------------------------|------|------|-----|-----|------|------|------|------|-----|------|------|------|------|------|------|------|------|------|
| <b>Bread cont'd</b>      |                        |      |      |     |     |      |      |      |      |     |      |      |      |      |      |      |      |      |      |
| 34                       | white, fried           | 320  | 590  | 160 | 130 | 210  | 400  | 210  | 230  | 93  | 360  | 290  | 170  | 250  | 360  | 2740 | 270  | 1050 | 470  |
| 35                       | toasted                | 410  | 740  | 200 | 170 | 270  | 510  | 270  | 290  | 120 | 460  | 370  | 220  | 320  | 460  | 3480 | 340  | 1340 | 590  |
| 36                       | dried crumbs           | 490  | 890  | 240 | 200 | 330  | 610  | 330  | 350  | 140 | 550  | 450  | 260  | 390  | 550  | 4180 | 410  | 1600 | 710  |
| 37                       | currant                | 270  | 490  | 130 | 110 | 180  | 340  | 180  | 190  | 78  | 300  | 250  | 150  | 210  | 300  | 2310 | 220  | 890  | 390  |
| 38                       | malt                   | 310  | 610  | 220 | 150 | 230  | 410  | 280  | 250  | 100 | 410  | 420  | 190  | 340  | 450  | 2500 | 370  | 960  | 480  |
| 39                       | soda                   | 350  | 640  | 240 | 150 | 200  | 420  | 240  | 260  | 100 | 410  | 310  | 190  | 270  | 420  | 2700 | 260  | 1040 | 480  |
| 40                       | Rolls brown, crusty    | 420  | 850  | 280 | 200 | 320  | 570  | 380  | 340  | 140 | 550  | 530  | 260  | 380  | 550  | 4080 | 400  | 1560 | 710  |
| 41                       | soft                   | 430  | 860  | 290 | 210 | 330  | 570  | 390  | 350  | 140 | 550  | 530  | 270  | 390  | 550  | 4140 | 410  | 1590 | 720  |
| 42                       | white, crusty          | 490  | 900  | 250 | 200 | 330  | 610  | 330  | 350  | 140 | 550  | 450  | 270  | 390  | 550  | 4200 | 410  | 1610 | 710  |
| 43                       | soft                   | 410  | 760  | 210 | 170 | 280  | 520  | 280  | 290  | 120 | 460  | 380  | 220  | 330  | 460  | 3540 | 340  | 1360 | 600  |
| 44                       | starch reduced         | 1850 | 3400 | 930 | 770 | 1240 | 2320 | 1240 | 1310 | 540 | 2080 | 1700 | 1000 | 1470 | 2080 | 5900 | 1540 | 6100 | 2700 |
| 45                       | Chapatis made with fat | 300  | 600  | 200 | 140 | 230  | 400  | 270  | 240  | 99  | 380  | 370  | 190  | 270  | 380  | 2870 | 280  | 1090 | 500  |
| 46                       | made without fat       | 270  | 540  | 180 | 130 | 210  | 360  | 240  | 220  | 90  | 350  | 330  | 170  | 240  | 350  | 2590 | 260  | 990  | 450  |
| <b>Breakfast cereals</b> |                        |      |      |     |     |      |      |      |      |     |      |      |      |      |      |      |      |      |      |
| 47                       | All-bran               | 500  | 980  | 650 | 240 | 410  | 620  | 480  | 530  | 190 | 740  | 1180 | 460  | 840  | 1220 | 3070 | 960  | 940  | 720  |
| 48                       | Cornflakes             | 320  | 1080 | 240 | 170 | 140  | 430  | 330  | 320  | 55  | 410  | 360  | 240  | 650  | 540  | 1630 | 320  | 770  | 430  |
| 49                       | Grapenuts              | 410  | 780  | 300 | 190 | 260  | 590  | 350  | 390  | 190 | 570  | 560  | 240  | 490  | 650  | 2720 | 440  | 1260 | 460  |
| 50                       | Muesli                 | 530  | 1000 | 510 | 240 | 380  | 690  | 460  | 460  | 180 | 710  | 860  | 290  | 620  | 1060 | 2900 | 640  | 710  | 640  |
| 51                       | Puffed Wheat           | 510  | 1030 | 370 | 240 | 390  | 680  | 460  | 420  | 170 | 680  | 710  | 320  | 560  | 760  | 4170 | 610  | 1610 | 810  |
| 52                       | Ready Brek             | 510  | 950  | 490 | 230 | 360  | 660  | 450  | 450  | 170 | 680  | 830  | 280  | 590  | 1020 | 2780 | 620  | 680  | 620  |
| 53                       | Rice Krispies          | 240  | 510  | 230 | 130 | 99   | 300  | 250  | 210  | 79  | 360  | 470  | 150  | 360  | 590  | 1190 | 270  | 290  | 280  |

| No                             | Food                  | Ile  | Leu  | Lys | Met | Cys  | Phe  | Tyr  | Thr  | Trp | Val  | Arg  | His  | Ala  | Asp  | Glu  | Gly  | Pro  | Ser  |
|--------------------------------|-----------------------|------|------|-----|-----|------|------|------|------|-----|------|------|------|------|------|------|------|------|------|
| <i>Breakfast cereals contd</i> |                       |      |      |     |     |      |      |      |      |     |      |      |      |      |      |      |      |      |      |
| 54                             | Shredded Wheat        | 380  | 760  | 270 | 180 | 290  | 510  | 340  | 310  | 130 | 510  | 530  | 240  | 420  | 560  | 3100 | 450  | 1200 | 600  |
| 56                             | Sugar Puffs           | 210  | 420  | 150 | 100 | 160  | 280  | 190  | 170  | 71  | 280  | 290  | 130  | 230  | 310  | 1730 | 250  | 670  | 330  |
| 57                             | Weetabix              | 410  | 820  | 290 | 200 | 310  | 550  | 370  | 330  | 140 | 550  | 570  | 260  | 450  | 610  | 3350 | 490  | 1290 | 650  |
| <i>Biscuits</i>                |                       |      |      |     |     |      |      |      |      |     |      |      |      |      |      |      |      |      |      |
| 58                             | Chocolats full coated | 240  | 440  | 120 | 100 | 160  | 300  | 160  | 170  | 70  | 270  | 220  | 130  | 190  | 270  | 2060 | 200  | 790  | 350  |
| 59                             | Cream crackers        | 400  | 730  | 200 | 170 | 270  | 500  | 270  | 280  | 120 | 450  | 370  | 220  | 320  | 450  | 3420 | 330  | 1310 | 580  |
| 60                             | Crispbread rye        | 350  | 630  | 340 | 150 | 190  | 450  | 190  | 340  | 110 | 480  | 470  | 230  | 440  | 730  | 2430 | 440  | 950  | 390  |
| 61                             | wheat starch reduced  | 1910 | 3490 | 950 | 790 | 1270 | 2380 | 1270 | 1350 | 560 | 2140 | 1750 | 1030 | 1510 | 2140 | 6360 | 1590 | 6270 | 2780 |
| 62                             | Digestive plain       | 350  | 710  | 240 | 170 | 270  | 470  | 320  | 290  | 120 | 450  | 440  | 220  | 320  | 450  | 3390 | 340  | 1290 | 590  |
| 64                             | Ginger nuts           | 240  | 430  | 120 | 98  | 160  | 290  | 160  | 170  | 69  | 270  | 220  | 130  | 190  | 270  | 2020 | 200  | 770  | 340  |
| 65                             | Home made             | 290  | 510  | 200 | 140 | 160  | 340  | 200  | 220  | 87  | 350  | 280  | 150  | 250  | 400  | 1950 | 220  | 740  | 420  |
| 66                             | Matzo                 | 440  | 810  | 220 | 190 | 300  | 560  | 300  | 320  | 130 | 500  | 410  | 240  | 350  | 500  | 3810 | 370  | 1460 | 650  |
| 67                             | Oatcakes              | 410  | 770  | 390 | 190 | 290  | 530  | 360  | 360  | 140 | 550  | 670  | 220  | 480  | 820  | 2240 | 500  | 550  | 500  |
| 68                             | Sandwich              | 210  | 380  | 100 | 87  | 140  | 260  | 140  | 150  | 61  | 240  | 190  | 110  | 170  | 240  | 1790 | 170  | 690  | 310  |
| 69                             | Semi-sweet            | 280  | 520  | 140 | 120 | 190  | 350  | 190  | 200  | 83  | 320  | 260  | 150  | 220  | 320  | 2430 | 240  | 930  | 410  |
| 70                             | Short-sweet           | 260  | 480  | 130 | 110 | 170  | 320  | 170  | 180  | 76  | 290  | 240  | 140  | 210  | 290  | 2230 | 220  | 850  | 380  |
| 71                             | Shortbread            | 260  | 480  | 140 | 110 | 170  | 330  | 180  | 190  | 76  | 300  | 240  | 140  | 210  | 300  | 2210 | 220  | 850  | 380  |
| 72                             | Wafers filled         | 200  | 360  | 98  | 82  | 130  | 250  | 130  | 140  | 57  | 220  | 180  | 110  | 160  | 220  | 1690 | 160  | 650  | 290  |
| 73                             | Water biscuits        | 450  | 830  | 230 | 190 | 300  | 570  | 300  | 320  | 130 | 510  | 420  | 250  | 360  | 510  | 3890 | 380  | 1490 | 660  |

| No                       | Food                       | Ile | Leu | Lys | Met | Cys | Phe | Tyr | Thr | Trp | Val | Arg | His | Ala | Asp | Glu  | Gly | Pro  | Ser |
|--------------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|------|-----|
| <b>Cakes</b>             |                            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |     |      |     |
| 74                       | <b>Fancy iced cakes</b>    | 160 | 290 | 79  | 66  | 110 | 200 | 110 | 110 | 46  | 180 | 150 | 86  | 130 | 180 | 1360 | 130 | 520  | 230 |
| 75                       | <b>Fruitcake rich</b>      | 150 | 250 | 140 | 99  | 80  | 170 | 110 | 140 | 47  | 200 | 200 | 98  | 160 | 320 | 880  | 120 | 290  | 240 |
| 76                       | <b>rich iced</b>           | 170 | 290 | 150 | 97  | 81  | 200 | 130 | 150 | 50  | 240 | 310 | 110 | 190 | 400 | 950  | 170 | 280  | 240 |
| 78                       | <b>Gingerbread</b>         | 270 | 460 | 210 | 130 | 140 | 300 | 190 | 210 | 79  | 320 | 260 | 140 | 230 | 380 | 1630 | 190 | 620  | 380 |
| 79                       | <b>Madeira cake</b>        | 230 | 410 | 110 | 94  | 150 | 280 | 150 | 160 | 66  | 250 | 210 | 120 | 180 | 250 | 1940 | 190 | 740  | 330 |
| 80                       | <b>Rock cakes</b>          | 240 | 410 | 180 | 120 | 130 | 270 | 170 | 190 | 71  | 290 | 250 | 130 | 210 | 360 | 1590 | 180 | 590  | 350 |
| 81                       | <b>Spongecake with fat</b> | 320 | 510 | 280 | 160 | 140 | 330 | 220 | 270 | 97  | 400 | 320 | 150 | 280 | 510 | 1440 | 210 | 530  | 450 |
| 82                       | <b>without fat</b>         | 520 | 810 | 510 | 280 | 210 | 520 | 370 | 450 | 160 | 670 | 540 | 240 | 480 | 900 | 1890 | 320 | 670  | 730 |
| <b>Buns and pastries</b> |                            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |     |      |     |
| 84                       | <b>Current buns</b>        | 310 | 570 | 160 | 130 | 210 | 390 | 210 | 220 | 91  | 350 | 290 | 170 | 250 | 350 | 2680 | 260 | 1030 | 460 |
| 85                       | <b>Doughnuts</b>           | 250 | 450 | 120 | 100 | 170 | 310 | 170 | 180 | 72  | 280 | 230 | 130 | 200 | 280 | 2120 | 210 | 810  | 360 |
| 86                       | <b>Eclairs</b>             | 210 | 350 | 210 | 110 | 91  | 230 | 150 | 190 | 66  | 280 | 230 | 100 | 200 | 370 | 980  | 150 | 350  | 290 |
| 87                       | <b>Jam tarts</b>           | 140 | 260 | 76  | 58  | 90  | 170 | 94  | 100 | 42  | 160 | 130 | 78  | 120 | 230 | 1170 | 120 | 450  | 210 |
| 88                       | <b>Mince pies</b>          | 170 | 310 | 90  | 78  | 120 | 220 | 120 | 130 | 50  | 200 | 170 | 100 | 140 | 220 | 1490 | 150 | 560  | 260 |

| No                             | Food                            | Ile | Leu | Lys | Met | Cys | Phe | Tyr | Thr | Trp | Val | Arg | His | Ala | Asp | Glu  | Gly | Pro | Ser |
|--------------------------------|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
| <i>Buns and pastries contd</i> |                                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |
| 89                             | <b>Pastry, choux</b> raw        | 280 | 440 | 240 | 140 | 120 | 290 | 190 | 230 | 84  | 350 | 280 | 130 | 250 | 440 | 1250 | 180 | 460 | 390 |
| 90                             | cooked                          | 420 | 690 | 380 | 220 | 190 | 440 | 300 | 360 | 130 | 540 | 430 | 200 | 380 | 690 | 1930 | 280 | 700 | 600 |
| 91                             | <b>flaky</b> raw                | 190 | 340 | 92  | 77  | 120 | 230 | 120 | 130 | 54  | 210 | 170 | 100 | 150 | 210 | 1590 | 150 | 610 | 270 |
| 92                             | cooked                          | 250 | 450 | 120 | 100 | 160 | 310 | 160 | 170 | 71  | 280 | 220 | 130 | 190 | 280 | 2100 | 200 | 810 | 360 |
| 93                             | <b>shortcrust</b> raw           | 250 | 450 | 120 | 100 | 170 | 310 | 170 | 180 | 72  | 280 | 230 | 130 | 200 | 280 | 2120 | 210 | 810 | 360 |
| 94                             | cooked                          | 290 | 530 | 140 | 120 | 190 | 360 | 190 | 200 | 84  | 320 | 260 | 160 | 230 | 320 | 2470 | 240 | 950 | 420 |
| 95                             | <b>Scones</b>                   | 330 | 610 | 230 | 150 | 190 | 400 | 230 | 250 | 95  | 390 | 290 | 180 | 260 | 400 | 2550 | 250 | 990 | 460 |
| 96                             | <b>Scotch pancakes</b>          | 320 | 560 | 280 | 150 | 150 | 350 | 230 | 250 | 92  | 390 | 290 | 160 | 260 | 440 | 1930 | 210 | 740 | 430 |
| <i>Puddings</i>                |                                 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |     |     |     |
| 97                             | <b>Apple crumble</b>            | 76  | 140 | 46  | 31  | 49  | 92  | 49  | 56  | 22  | 86  | 69  | 41  | 64  | 120 | 620  | 65  | 240 | 110 |
| 98                             | <b>Bread and butter pudding</b> | 330 | 560 | 400 | 170 | 93  | 320 | 250 | 290 | 93  | 430 | 290 | 170 | 270 | 540 | 1270 | 170 | 480 | 410 |
| 99                             | <b>Cheesecake</b>               | 210 | 360 | 220 | 110 | 78  | 220 | 160 | 180 | 61  | 270 | 190 | 110 | 180 | 330 | 1000 | 120 | 380 | 280 |
| 100                            | <b>Christmas pudding</b>        | 210 | 370 | 170 | 120 | 120 | 250 | 160 | 180 | 65  | 280 | 290 | 130 | 210 | 410 | 1370 | 180 | 470 | 320 |
| 101                            | <b>Custard egg</b>              | 320 | 540 | 420 | 170 | 74  | 300 | 240 | 290 | 90  | 420 | 280 | 160 | 260 | 540 | 1040 | 150 | 400 | 380 |
| 102                            | made with powder                | 210 | 380 | 310 | 110 | 36  | 200 | 170 | 190 | 54  | 280 | 150 | 110 | 140 | 320 | 860  | 84  | 350 | 220 |
| 103                            | <b>Custard tart</b>             | 280 | 500 | 270 | 140 | 120 | 310 | 200 | 230 | 81  | 350 | 250 | 150 | 230 | 410 | 1580 | 180 | 600 | 370 |
| 104                            | <b>Dumpling</b>                 | 120 | 220 | 61  | 51  | 82  | 150 | 82  | 87  | 36  | 140 | 110 | 66  | 97  | 140 | 1050 | 100 | 400 | 180 |