User’s Guide

“Microdiet”

For Windows 95, 98, 2000, NT and XP

Downlee Systems Limited
Downlee Lodge, Bankhall
Chapel-en-le-Frith
High Peak SK23 9UB

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1 Introduction

The “Microdiet” program performs nutrient analyses for a set of foods specified by the user. Data for several thousand foods are supplied with “Microdiet” (see Appendix I). Information is provided for over 80 nutrients as well as energy ratios, amino acids, fatty acids and phytosterols. Tables of recommended daily requirements are also included.

“Microdiet” is intended for use by professional dietitians. The first version was produced by staff at the University of Salford in 1983. The software is continuously updated and improved and this manual is for use with “Microdiet” Windows Version 2, first released by Downlee Systems Limited in February 2005.

1.1 What’s in the User’s Guide

Section 2 of this User’s Guide provides a quick start to creating and analysing a food list and obtaining a hard copy of a report. The aim of the quick start section is to get you up and running as quickly as possible.

Sections 3 and 4 are concerned with setting up and installing “Microdiet”. The other chapters describe in more detail how to use all of the functionality available in “Microdiet”.

Section 5 shows in detail how to create and save food lists and produce reports.

Section 6 deals with analysis, including evaluation of nutrient and energy totals and energy ratios by meal and by day, and comparison with recommended values.

Section 8 describes the use of the database functions, including how to list details of foods and nutrients from the UK, American and Italian databases provided, how to create records for new foods, how to select foods that are high and low in particular nutrients and how to produce client data records.

Section 9 shows how to use the optimisation function, which automatically determines the minimum changes necessary to modify a diet to satisfy specified nutrient requirements. The user can apply multiple constraints, for example requiring that particular nutrients
must be greater than or less than specified values and the program can also indicate the best foods to bring in.

Help accessed from the Microdiet main menu provides assistance in using Microdiet (see section 10.1). Context sensitive help is also available by clicking the Help button provided in each window.

Information on some individual nutrients, including deficiency symptoms, a description of the method of analysis and the nutrient’s physiological function, is available from the help menu (see section 10.2).

An electronic version of this User’s Guide is available in the main MicrodietV2 folder after installation, file name “userguideV2.pdf”.

1.2 System requirements
A PC capable of running Windows 95, 98, 2000, NT or XP.

1.3 How to contact us
telephone +44 (0) 1298 81 4809
fax +44 (0) 1298 81 6045
e-mail support@microdiet.co.uk
website www.microdiet.co.uk
2 Quick Start to Creating and Analysing a Food List

• To install “Microdiet” see section 3.

Making a food list

To make a new food list (sections 5.1, 5.2):

• From the main menu select File.
• Select New Foodlist.
• In Select Dataset, select the dataset required, e.g. McCance, 6th Summary Edition.
• Enter a food name in the food name string box (this can be up to three short strings separated by spaces) and click the Search button.
• Scroll down the list in All foods in Dataset and select the appropriate food. (If no food is found, select a different dataset or enter another food name and click the Search button again).
• Enter a day code if required (in the range 1 – 7), (see section 5.2).
• Enter a meal code if required (i.e. B for breakfast, L for lunch etc.), (see section 5.2).
• Choose a portion size or weight from the list and enter the amount in the Quantity box (see section 5.2).
• Click the Add to List button. (Note: To remove a food from the list, highlight the food and click the Remove button.)

To enter a food not in the datasets for which you have nutrient data:

• From the main menu select Database.
• Select Create a New Database Food (see section 8.2).
• Type in the food details (foodcode, foodname, foodgroup).
• Click the Main Nutrients tab. A pop up box asks if you are entering data from a food label. Click the Yes button to enter data directly from a label if available or the No button to enter raw data straight into the food record.
• To enter amino acid or fatty acid values click the appropriate tab.
• Enter portion sizes.
• Click the Save to Database button. The food will be added to the User’s Own Foods dataset.
To save a food list as a recipe:

- Make a food list as above, containing all the ingredients.
- From the main menu select *Database*.
- Select *Make Foodlist into a new Database food* (see section 8.3).
- Fill in the food details and portion sizes.
- Click the *Make* button. The food will be added to the *User’s Own Foods* dataset and can be edited by selecting *Database* followed by *Edit/View Food Tables*.

To edit and view foods from the datasets:

- Select *Database* from the main menu
- Select *Edit/View Food Tables* (see section 8.1).
- Select a dataset in the top right-hand box and select a food by entering the food code in the box provided.
- The *Database Navigator* buttons at the top of the screen provide functions for moving through the food records in the dataset and for editing (move the cursor across the buttons to see their function).
- Click the *Database Navigator, Edit* button ↑ before changing or entering nutrient data. Four of the five pages of data can be edited: main nutrients, amino acids, fatty acids and portions.
- When all changes are made, click the *Database Navigator, Post edit* button ✓ to make changes permanent. Ratios will be updated for you.
- The *Database Navigator, Refresh* button fetches the original record from the database if the changes have not been posted.

**Analysis**

To analyse a food list:

- From the main menu click *Analyse*.
- Select *Nutrient Analyses*.
- To display all 84 nutrients or the selected set of up to 28 nutrients, click the appropriate item in the *Show* box.
- Set the divisor if required (see section 6.1). The default is 1 but if for example a seven-day diet has been entered on the food list then a divisor of 7 should be set so that the average nutrient intake per day can be calculated. The *DivTot* column in the table displays nutrient totals divided by the divisor.
- To select recommended intake values click the *Select RV’s* button, (see section 7.5).
• Select a table from the drop down list at the top of the Recommended Nutrient Intakes screen.
• Click a group name to select the set of RV’s to compare with nutrient totals.
• Press the Select RV button. The results are then displayed on the Nutrient Analyses screen in table form and as a bar chart showing nutrient totals as a percentage of recommended values.
• Press the Print Preview button to view the results in printable form.
• Nutrients by meal/day, nutrients in 100g, energy and ratios, amino acid totals, fatty acid totals and electrolytes in molar form can be viewed by clicking the appropriate tab at the top of the Nutrient Analyses page.

To see information on a specific nutrient:

From the main menu, select Help and Microdiet Help. Click the Contents tab, double click Nutrient Information and double click Information from Norwich. Click any of the nutrients listed to see more information.

To see how foods on the list contribute to a nutrient total:

• From the main menu select Analyse.
• Select Contribution of FoodList to nutrient (see section 6.2).
• Click a nutrient in the left hand table.
• The list of foods, nutrient total and percentage of total is shown in the right hand table in descending quantity order.

To find foods in the database which are high or low in a nutrient:

• From the main menu select Database.
• Select Find foods High or Low in a Nutrient (see section 8.4).
• Select a nutrient (several can be selected).
• Click > (greater than) or < (less than) and enter a quantity.
• Click the Add button.
• Select a dataset and click the Search button.
• A list of foods from the selected dataset, containing the specified amounts of the selected nutrients will be displayed in the lower grid. The list can be sorted in descending order of a nutrient by clicking the column heading.
• Click the Print list button to print the list.
Note: Food list nutrient totals can be statistically analysed and compared to each other if nutrient totals files are saved (see section 6.4).

Producing a Report

To produce a report (see section 5.9):

- From the main menu select File.
- Select Produce Report.
- Click items on the list of Report components available one at a time in the order you wish them to appear on the report.
- Click Produce report in rich text format.
- The report can be edited, printed or saved to a file for use with a word processor, e.g. Microsoft Word.

To add a title to the report (see section 5.11):

- Close the Report window if open.
- From the main menu select File.
- Select New Title for foodlist.
- Enter a new title in the box and click the OK button.
- The title can be added to the report by ticking the report title box in Select Report Headers on the Report window. The title will appear before the selected analyses.

To add clients details at start of report:

- From the main menu select Database.
- Select Edit/Select Client.
- Click the New button.
- Enter the client’s name, ID, weight, height, date of birth, activity level, sex and RV’s (see section 8.8) and click the Save button.
- To add these details to a report, click the required client in the Client List window and click the Select button.
- From the main menu select File and Produce Report.
- Tick Client Details in the Select Report Headers box. The client details will be displayed before the selected analyses.

Note: You can replace the report header with your own (see section 5.12).

Note: You can create a note and add it anywhere in the report (see section 5.10).
3 Setting up

3.1 Before Installing

When upgrading from “Microdiet” for Windows Version 1, before installing “Microdiet” Version 2, backup the user’s data (see section 8.9).

When upgrading from a DOS version of “Microdiet”, the DOS version should be left on the system so that any changes you have made to the DOS database can be copied to the new database (see sections 8.11.3 and 8.11.4).

3.2 Installation

1. Insert the CD-ROM in the CD-ROM drive or, if you are using floppy disks, insert the Setup Disk 1 in a floppy disk drive.
2. Click the Start button followed by Run.
3. Type drive letter, followed by a colon (:) and a backslash (\), and the word setup.
   For example: d:\setup
4. Click OK.
5. Follow the instructions on your screen. Click Next to continue through the setup process.

All of the files necessary to run “Microdiet” will be installed on the computer together with the nutrient database described in Appendix I.

The default installation copies files to the \Program Files\MicrodietV2 folder. If you are not an experienced user we recommend that you accept the default.
4 Starting “Microdiet”

4.1 How to start the program

To start “Microdiet” use one of the following three methods:

- Click Start, click Programs and click MicrodietV2.
- Using Windows Explorer or My Computer, locate and double-click the MicrodietV2.exe file (the default installation puts this in the ..\Program Files\MicrodietV2 folder).
- Choose Run from the Microsoft Windows Taskbar Start menu, click the Browse button and locate the path to MicrodietV2.exe (for the default installation this is ..\Program Files\MicrodietV2).

The “Microdiet” main window is displayed with menu options across the top:

![Microdiet main window](image)

If the “Microdiet” main screen seems too big for your monitor then you may need to increase your display screen resolution. To do this click the Windows Start button and select Settings then Control Panel. Double click Display and select Settings. In the Screen resolution box increase the resolution to at least 800x600.
### 4.2 Menu options

<table>
<thead>
<tr>
<th>File</th>
<th>New Foodlist</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open Foodlist…</td>
</tr>
<tr>
<td></td>
<td>Append Foodlist…</td>
</tr>
<tr>
<td></td>
<td>Save Foodlist</td>
</tr>
<tr>
<td></td>
<td>SaveAs Foodlist…</td>
</tr>
<tr>
<td></td>
<td>Close</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analyse</th>
<th>Nutrient Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contribution of Food List to nutrients</td>
</tr>
<tr>
<td></td>
<td>Labelling</td>
</tr>
<tr>
<td></td>
<td>Statistics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Options</th>
<th>Edit Meal Names</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Edit Nutrient Names</td>
</tr>
<tr>
<td></td>
<td>Select Nutrient Subset</td>
</tr>
<tr>
<td></td>
<td>Order Nutrients</td>
</tr>
<tr>
<td></td>
<td>Select Reference Values</td>
</tr>
<tr>
<td></td>
<td>Show/Hide Data Sets</td>
</tr>
<tr>
<td></td>
<td>List Files in a selected folder</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Database</th>
<th>Edit/View Food Tables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Create a New Database Food</td>
</tr>
<tr>
<td></td>
<td>Make Food list into a new Database food</td>
</tr>
<tr>
<td></td>
<td>Find foods High or Low in a Nutrient</td>
</tr>
<tr>
<td></td>
<td>Edit Alternative Food Names</td>
</tr>
<tr>
<td></td>
<td>List User’s Foods</td>
</tr>
<tr>
<td></td>
<td>Edit Units of Weight</td>
</tr>
<tr>
<td></td>
<td>Edit/Select Client</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Backup Database</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Restore Database</td>
</tr>
</tbody>
</table>

Import Foods
Optimise - Setup Targets
Calculate Food Quantities
Find Best Food

Help - Contents
About “Microdiet”
5 Creating a food list

5.1 Food list Window

From the main screen select File and from the drop down list select New Foodlist. The Food list window opens inside the “Microdiet” main window. When opened the top left hand grid is empty and the top right hand chart is blank. To open an existing food list select File then Open Foodlist. The screen shot below shows this window after opening the file manual.fl2 included with the software:

The bottom left hand grid can be scrolled to display all of the food names available in the selected dataset. See Appendix I for a full list of datasets supplied with the program. Food codes shown in the list are those used in the publications listed in Appendix I. Prefix 4- and 5- are used to differentiate between 4th and 5th edition foods.

In line with the policy adopted by the Food Standards Agency (FSA) foods in the 6th Summary Edition dataset have been added to the supplement data sets and so do not have food codes with 6- prefix.
Some examples of foods and their sources are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Food Type</th>
<th>Edition/or Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-30</td>
<td>Bread wholemeal</td>
<td>4th edition</td>
</tr>
<tr>
<td>5002</td>
<td>Bread pitta white</td>
<td>Immigrant foods supplement</td>
</tr>
<tr>
<td>11102</td>
<td>White bread sliced</td>
<td>Cereal and cereal products supplement</td>
</tr>
<tr>
<td>5-39</td>
<td>Granary bread</td>
<td>5th edition</td>
</tr>
<tr>
<td>11467</td>
<td>Wheatgerm bread</td>
<td>6th Summary Edition (Book number 6-52)</td>
</tr>
</tbody>
</table>

The selection box at the bottom left hand corner labelled *Select Dataset*, displays a list of subsets of foods which can be displayed in the *All foods in Database* grid. When the 6th Summary Edition dataset is selected, the book number for each food is also shown and can be used in the *Enter food code* box to select a food. However, only the food code is shown on the *Selected foods* list.

The bottom right hand window has two tabs. Click the tab labelled *Food % Energy* to display a pie chart showing ratios of carbohydrate (CHO), fat, protein and alcohol (if present) for the individual database food highlighted. Click the tab labelled *food description* to display a window which has a food description at the top, comments in the centre and footnotes at the bottom as supplied for the highlighted food by FSA.

Nutrients per 100g of the highlighted food are displayed in the box labelled *Nutr per 100g food*.

The top left-hand grid contains the list of foods selected from the database or from file. The first page of this grid displays a food code, food name, food group, quantity, weight or portion name, quantity in grams and meal code for each food. Click the tabs at the bottom of this grid to see the other pages which contain different sets of nutrients in spreadsheet form. The nutrients displayed on the UserSet page are those selected by the user (see section 7.3). The next seven pages display all available main nutrients (i.e. 1-12, 13-24, etc.). The last six pages display essential amino acids (Amin(e)), inessential amino acids (Amin(i)), saturated fatty acids (SFA), monounsaturated fatty acids (MUFA), polyunsaturated fatty acids (PUFA) and phytosterols (Phytos).

Nutrient values that are described by FSA as ‘guessed’ are displayed in round brackets. If the value is not known an N is displayed and if the food contains trace elements, a T is displayed.
The pie chart labelled *Foodlist Total % Energy*, displays percentage energy contributed to the food list total by carbohydrate, fat, protein and alcohol. As you add foods to the list you will see the ratios change in this pie chart.

For both pie charts, the factors used for conversion from grams to energy (kcal) are as follows:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>4</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>3.75</td>
</tr>
<tr>
<td>Fat</td>
<td>9</td>
</tr>
<tr>
<td>Alcohol</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: If any of the columns in a grid are too narrow to see the nutrient amount you can make the column wider. Move the cursor to the heading of the column, place the cursor on the right-hand dividing line, press the left mouse button and drag the column heading to the right.

### 5.2 Making up a food list

**Select a dataset:**

To select a dataset, click the down arrow at the right hand side of the *Select dataset* drop down list box (near the bottom of the screen).

The list of datasets includes:

- McCance, 6th Summary Edition
- User’s Own Foods
- Italian Foods
- American Foods Release 16-1
- McCance, latest version of each food
- User’s choice from McCance

When the *McCance 6th Edition* dataset is selected, only foods from 6th edition foods are listed in the *All foods in Dataset* grid.

If *User’s Own Foods* is selected, only foods in that dataset will be shown.

The *McCance, latest version of each food* option displays the **most recent** version of every food supplied by HMSO, i.e. all ‘previous’ versions of a food are removed.
The User’s choice from McCance option displays all of the datasets selected in the Show/Hide Foodname Sets option (see section 7.6). When this dataset is selected, several versions of the same food may be displayed.

Note: Food names included on the Alternative Names list are only available when the User’s choice from McCance option is selected.

Select a food from the database:
Enter a food name or part of a food name in the food name string box (situated half way down the screen) and press the Enter key or click the Search button. All food names in the selected dataset containing the string will be displayed in the bottom left hand grid. Scroll through the list to find the food you want and click the required food name to select it. If no food is found, enter another food name string or select a different dataset and click the Search button again.

Alternatively, a food code can be entered in the food code box. Press the Enter key or click the Search button and the selected food will appear in the bottom left hand grid.

Note: When entering a food name string it is possible to enter up to three strings separated by a space. For example if whi bre is entered, food names containing these two strings in either order will be displayed, so that white bread … and bread white … can be selected with one entry. Similarly whi bre toast will find all foods with these three strings in any order.

Note: Only the selected dataset is searched when a food code or name string is entered.

Select a quantity:
The Portion size or weight box displays all of the weights and portions available for the chosen food. For example, if a weight in grams is required then click g (1g) to highlight it. Enter the number of grams required in the Quantity box. If one medium portion size is required then highlight medium portion and enter a 1 in the Quantity box. For more information on portion sizes see section 8.1.

Select a meal code:
If no code is entered, the field will be left blank. If you wish to enter a meal code click the down arrow to display all available meal codes.
These are:

- B – Breakfast
- M – Mid-morning snack
- L – Lunch
- A – Afternoon snack
- D – Dinner
- E – Evening snack
- S – Snacks and drinks

Click your choice. Meal codes are not required but if selected, foods on reports will be sorted into separate meals under headings. If left blank, foods will be printed in a single list. You can enter or edit codes at any time by clicking on the meal code column and typing the appropriate letter or a blank.

**Select a day code:**
If no code is entered, the field will be left blank. If you wish to enter a day code click the down arrow to display all available day codes.

These are:

1 – Day 1  
2 – Day 2  
3 – Day 3  
4 – Day 4  
5 – Day 5  
6 – Day 6  
7 – Day 7

Click your choice. Day codes are not required but if selected, nutrient analyses by day are available. You can enter or edit the codes at any time by clicking the day code column and typing the appropriate digit or a blank.

If meals and days are both selected, nutrient analyses by day and by meal are available.
Add selected food to the list:
Click the *Add to list* button and the selected food and nutrients will be written to the *Selected foods* table.

Note: It is advisable to save the list of foods at regular intervals.

5.3 Selecting a food list from a file
From the main menu select *File* and then *Open Foodlist*. Food list files have the file extension .fl2 (food list version 2). An Open File box displays available food list files on your system.

The first time you use this option you should see the sample files installed in the ..\Program Files\MicrodietV2\UsersFiles folder. Use the *Look in* box to move to other folders containing .fl2 files. Click the required file and click the *Open* button and the list of foods will be written to the *Selected foods* table, replacing any foods previously selected (see section 5.4 if you wish to append foods to the list from a file).

Files created using “Microdiet” for Windows version 1 or the DOS version of “Microdiet” can be opened as follows:

From the main menu select *File* and *Open Foodlist* as above. Click the down arrow in the *Files of type* box and select *foodlist files Ver1 (*.flr)* for version 1 files or *DOS foodlist files (*.sms)* for your DOS version files.
Move to the folder containing your .flr or .sms files using the Look in box. Click the required file, click the Open button and the list of foods will be written to the Selected Foods table, replacing any foods previously selected.

Note: If you have difficulty remembering where you have saved files, use the Windows Find option. Click the Windows Start Button, click Find, select Files or Folders, enter *.fl2 in the Named box and click the Find Now button. Windows will list all your food list files together with their path. Return to “Microdiet” and locate and open your chosen file as above.

5.4 Appending a food list
From the main menu select File and then Append Foodlist. Follow the instructions in section 5.3 above for selecting a food list from a file. The list of foods will be appended to the Selected Foods table, at the end of the list of foods previously selected. This option is useful for appending together lists previously saved for different meals such as breakfast, lunch, etc.

5.5 Editing the food list
Deleting a food from the list:
In the Selected foods table, click the food to be removed from the list. Then click the Remove button.

Exchanging a food:
A food on the list can be exchanged for another food from the database or for the same food with a different portion type and quantity. Select the food on the All foods in Database grid that you want on your list and choose a portion size and quantity, highlight the food on your selected foods list that you want to replace and click the exchange button. The selected food from All foods in Database will be written to the list in place of the highlighted food in your selected foods list.

Changing a food quantity:
Select the FoodList tab at the bottom of the Selected foods table. Click the Quant cell for the food quantity to be changed. Type in the new quantity and press the Enter key.
Changing a meal code:
In the top left-hand grid containing the food list, click the meal slot for the selected food and press key B for breakfast, M for mid-morning snack, L for lunch, A for afternoon snack, D for dinner, E for evening snack or S for snacks and press the Enter key. Use the up or down arrows on the keyboard to change meal codes alongside other foods on the list.

Changing a day code:
In the top left-hand grid containing the food list, click the day slot for the selected food and press key 1 for day 1, 2 for day 2, etc. and press the Enter key. Use the up or down arrows on the keyboard to access day codes for other foods on the list.

Any day or meal codes which have been left blank can be changed in this way. Codes can be removed by entering a space.

Combine quantities of the same food:
When the combine option is selected, any foods with the same food code entered on the list more than once can be replaced automatically by a single entry with the total quantity. Click the Combine button and follow the instructions. You will be prompted to save your current food list before “Microdiet” automatically creates a new food list with combined quantities. You will then be prompted to save the new list using the old filename with the string ‘comb’ added, e.g. manualcomb.fl2.

Changing the user’s selected subset of nutrients:
The second page of the Selected foods grid with tab heading UserSet displays nutrient values for the nutrient subset selected. This set can be changed at any time without closing down the food list window (see Section 7.3). When the required nutrients have been selected, click the Apply Changes button on the nutrient subset window. The first twenty-eight nutrients of the selected subset will be displayed on the UserSet page of the Selected foods grid. The selected subset will also replace the list displayed for the highlighted database food in the Nutr per 100g food list box.

5.6 Printing the Food List
Click the Print Preview button at the bottom of the screen. Five options are available:
Click the button for the option required. An example of the Print Preview output for the Foodlist by Meal option for the example food list Eve.fl2 is shown in the following screenshot:

To print the list, click the print button at the top of the Print Preview page.

The spreadsheet option provides a print preview of nutrient content for all foods on the list for the selected subset of nutrients (see section 7.3).
5.7 Saving a food list to a file

When you start a new food list, the file is opened with the name ‘noname.fl2’. To save the list, select *Save As* from the drop down *File* menu:

![Save As dialog box](Image)

The *Save in* box displays the default folder in which the file will be saved. The default installation sets this to `\Program Files\MicrodietV2`. Click the down arrow to display other drives and folders. Move to the folder in which you wish to save your file. Type the file name in the *File name* box and click the *Save* button. The file will be saved with extension .fl2 to the folder you have chosen. This folder will then become the default for opening and saving files until you select a different folder.

If you wish to save changes to a food list without changing the file name, select the *Save* option.

Note: To create a new folder in which to store your files use the Windows Explorer. Click the *Start* button, select *programs* and select *Windows Explorer*. Within Windows Explorer select *File*, select *New* and select *Folder*. A new folder will be opened with the name ‘New Folder’. Rename the folder.

5.8 Exporting files to other programs

The food list, together with the full spreadsheet of nutrients and totals can be saved to a comma delimited text file. This can then be imported into programs such as Microsoft Excel.
Click the Export to text button at the bottom of the food list window. The screenshot below shows the data in comma delimited text form for the food list Manual.f12.

Click the tab for the group of nutrients to be exported. If the Main+Amino+Fatty tab is selected, the main nutrients, amino acids and fatty acids will be saved together to one file.

Click All nutrients to display every available nutrient. Click selected set to display your chosen subset of nutrients (see Section 7.3 for method of choosing a nutrient subset for display).

Click the Save to File button. You will be prompted for a filename and the data will be saved to a comma delimited text file with your selected name and the file extension .txt.

Note: If importing the resulting comma delimited text file into Excel you will need to set the food code column to text in the Column Data Format option in Excel. This will ensure that the food codes are not translated into dates.
5.9 Reports

You must first have a list of foods selected. From the main menu select File. From the drop down menu select Produce Report to open the Report window:

Click items in the Report components available list, one at a time, in the order you wish them to appear in the printed report. Your selection is shown in the Report print list window. To delete an item from the Report print list, highlight it and click the Delete button. To clear the whole list and start again, click the Clear button. To move an item to a different position in the list, place the cursor over the item to be moved, press and hold down the left mouse button and drag the item to the required position. Release the mouse button and the item will be placed in position. When the selection is complete, click the Produce report in rich text format button to display the report in rich text format. This report can be edited and printed or can be saved to a file with .rtf extension for use with other word processors such as Microsoft Word.

Click boxes in the Select Report Headers box to select the headers required at the top of your document. The method for changing the User’s Header is described in section 5.12 below. The method for selecting Client Details is described in section 8.8. The method for entering/changing a report title is described in section 5.11 below.
Enter a divisor if required (see section 6.1). The default is 1 but if for example a seven-day diet has been entered on the food list then a divisor of 7 can be set so that the average nutrient intake per day can be calculated. Nutrient totals will be divided by the divisor but nutrient values in the nutrient spreadsheet are not divided.

When you have selected all your options, click the *Produce report in rich text format* button to display your finished report ready to print or to save to a rich text format file.

Note: If day codes and/or meal codes were entered when composing the food list, the report food list and nutrient spreadsheet are displayed with foods listed under day and meal headings.

### 5.10 Create a Note

Click the *Create Note* button:

Type text directly into the *Add a note to the report* window or click the *Open File* button to open a text or rich text file. A rich text file is a file with .rtf extension, produced using a word processor. The contents of the file will be written to the window. Click the *Select for report* button and the window will close.
In the report window, from the Report components available list click Note to add it to the Report print list in the position that you want it to be displayed in the report.

5.11 Selecting a title
From the main menu select File and from the drop down list click Select New Title for foodlist:

The example above shows the Title window when the manual.fl2 file is open. The title shown above was recalled with the file. To leave the title unchanged, click the Cancel button. To change the title, enter a new title in the edit box and click the OK button. This changes the title on screen and on the report (where it is displayed before the selected analyses). To save the new title, save the food list.

5.12 Selecting a new header for reports
From the main menu select File and from the drop down list click New Header for reports:
The report header window opens showing the Downlee Systems address and instructions on how to change the heading.

The header can be replaced by typing new information straight into this window. However, this method is fairly limited for choice of fonts and formatting. Alternatively a word processor such as Microsoft Word can be used to produce a new header and this file MUST be saved in rich text format, .rtf. (In Microsoft Word, when saving the file select Rich Text Format (*.rtf) in the Save as type: box).

To replace the old header text, return to “Microdiet” and click File and New Header for reports. Click the Open File button and in the Look in box move to the folder where you have saved the .rtf file. Select the file and click the Open button. The new header will be displayed in the window in place of the Downlee Systems address. Click the Save heading button. This saves the new heading permanently to a file. The next time a report is produced with the Report Header box ticked, the new header will appear at the start of your report.

Note: To revert to the Downlee Systems header click the Revert to supplied button.
6 Analysis

On the main menu select Analyse. The drop down menu offers the following nutrient analysis options:

6.1 Nutrient analyses

You must first have a list of foods selected. Select Nutrient Analyses and the nutrient analysis window will be displayed. The screenshot below shows the nutrient analysis window with RV’s selected for comparison with nutrient totals:

There are seven pages of nutrient analyses; main nutrient totals compared with recommended values (Nutrient Totals v RV), main nutrient totals by meal and day (Nutrients by meal/day), nutrients in 100g of the combined foods (Nutrients in 100g), energy totals and ratios (Energy and Ratios), amino acid totals (Amino Totals), fatty acid totals (Fatty Totals) and electrolyte totals in molar form. Click a tab to open a page.

6.1.1.1 Divisor

The default value of the divisor is 1. To change the divisor, type a new value in the Divisor box at the bottom of the Nutrient Analysis Window and press the Enter key. Nutrient totals divided by the
The divisor are shown on the Nutrient Totals v RV page in the DivTot column.

Some uses for the divisor:

- The food list may represent more than one day's food intake. If the divisor is set as the number of days, then the nutrient totals produced are the average intake per day. This is useful if comparisons with Recommended Daily Amounts (RDA) are to be made.
- The amount of nutrients per kilogram of body weight can be found if the divisor is set as the body weight in kilograms.
- The amount of a food, or food list, which yields a fixed amount of a particular nutrient, can be found using the divisor.

  e.g. If the food (or food list) contains **148 kcals** of energy, find the weight of food that contains **1000 kcals**:

  Dividing the weight of food by **148** gives the weight of food that yields **1 kcal**.
  Dividing the weight of food by 0.148 gives the weight of food that yields **1000 kcal**.
  Therefore the divisor should be set to **0.148**.

  The value of the divisor is:

  'amount of the nutrient in the food'
  divided by
  'desired amount of the nutrient'.

6.1.1.2 Save totals:
Nutrient totals files need to be saved if you wish to use the statistical analysis module to compare nutrient totals or for export to other programs such as Microsoft Excel.

To save nutrient totals to a file, click the Save Totals button and you will be prompted for a filename. The file will be saved with extension .nt2.

This option does not use the selected set of nutrients. All 84 main nutrients will be saved.
If a divisor or a set of recommended values is selected, then these will be saved to file with the totals.

6.1.2 Main nutrients
The first page of the nutrient analysis window displays the main nutrient totals for the food list. You can display all 84 nutrients or the selected subset of nutrients (28 or less) by clicking your choice in the box labelled Show.

The column headed Div Tot displays the nutrient totals divided by the divisor (see section on Divisor on page 29).

If recommended values (RV’s) have been selected (see Note 2 below), extra columns in the grid display recommended values and nutrient totals as a percentage of recommended values. The bar chart provides a graphical representation of nutrient totals as a percentage of recommended values.

Note 1: To select a table of recommended values, click the Select RV’s button on the Nutrient Analyses window or select Options from the main menu followed by Select Reference Values from the drop down list, choose a table for comparison and click the Select RV button.

Note 2: Users should be aware that the totals calculated are only as accurate as the nutrient information provided by the data suppliers.
6.1.3 Nutrients by meal/day

To see this window click the *Nutrients by meal/day* tab. The screenshot below shows this screen when the sample food list file, eve.fl2, is opened. When this food list was created, a meal code was entered against each food on the list (see the section on *Select a meal code* in 5.2).

The grid on the left hand side displays a column of nutrient totals for the list of foods followed by a column of totals for each meal. A pie chart of energy ratios is provided for each meal. The heading for each column displays the day number followed by the meal code. For example, the column for Day 1, Breakfast has the heading 1B.

If foods have been entered for more than one day and the appropriate meal codes and day codes have been entered, the meal columns are followed by a column of totals for the day. The pie chart of energy ratios provided for each meal is followed by a pie chart of the energy ratios for the day. The first four charts are shown. Click the *Next 4* button to see the next four pie charts.

Click the *Print Preview* button to display and print the nutrient totals by meal and by day or to display and print the energy pie charts.
6.1.4 Nutrients in 100g

To see this window click the *Nutrients in 100g* tab.

The grid column labelled *per 100g* displays the amount of each nutrient in 100g of the total food list. To see the amount of each nutrient in a different portion, replace the 100 with the chosen portion size in grams and click the *OK* button.
6.1.5 Energy and Ratios
To see this window click the Energy and Ratios tab.

The column headed Energy (kcal) displays the calorific value (in kcal) from each of the energy sources; protein, carbohydrate, fat and alcohol, calculated for the current food list using the conversion factors shown in the column headed ConvFact(kcal/g). The column % of Total displays each energy source as a percentage of total energy.

Click the button under the grid to compare total energy calculated for labels by adding together the energy from protein, carbohydrate, fat and alcohol for the current food list (see section 6.3) with energy values calculated by adding together the energy value from the database for each food on the list.

Ratio of polyunsaturated fat to saturated fat (p:s ratio) and ratio of sodium to potassium (Na:K) are displayed.

Note: Users should be aware that the totals calculated are only as accurate as the nutrient information provided by the data suppliers.
6.1.6 Amino totals

To see the window below click the *Amino Totals* tab:

Information on 18 amino acids is supplied with “Microdiet”. The total amount of each amino acid contained in all the foods in the current food list is calculated. The user may choose to display a subset of these during analysis (see section 7.3).

Note: Users should be aware that the totals calculated are only as accurate as the nutrient information provided by the data suppliers.
6.1.7 Fat totals
To see the window below click the *Fat Totals* tab:

Information on 50 fatty acids is supplied with “Microdiet”. These include saturated, monounsaturated and polyunsaturated fatty acids and phytosterols. The total amount of each fatty acid contained in all the foods in the current food list is calculated. The user may choose to display a subset of these during analysis (see section 7.3).

The fatty acid long names can be changed by the user (see section 7.2).

Note: Users should be aware that the totals calculated are only as accurate as the nutrient information provided by the data suppliers.
6.1.8 Electrolyte Totals in Molar Form

You must first have a list of foods selected. To see this window click the Electrolyte Totals in Molar Form tab:

The total amount for each of the electrolytes in the current food list is displayed in molar form, i.e. mmol instead of mg and µmol instead of µg.
6.2 Contribution of food list to nutrients

You must first have a list of foods selected. From the drop down Analyse menu select Contribution of Food List to nutrients. The screen shot below shows this window with the list of foods from the file manual.fl2 included with the software:

![Contribution of Food List to Nutrients](image)

To display the list of main nutrients with totals for the food list click the Main Nutrients tab at the bottom of the left-hand grid. Click the appropriate tab to see Amino or Fatty acids.

To sort the food list by nutrient content, click the chosen nutrient in the left-hand grid. The food list appears sorted in descending order of nutrient content in the right-hand grid. In the screen shot, nutrient energy in kcal is shown highlighted and the food list is shown in the right-hand grid, sorted in descending order of energy kcal. Percentage of total energy is given in the right hand column.

The Remove button can be used to remove items from the list that have little or none of the nutrient selected. First click the selected food in the right-hand grid, and then click the Remove button. All of the foods below and including the selected food are removed.

To print the list, click the Print Preview button. The Select Print Option window is displayed.
The list of nutrient totals together with percentage totals can be displayed in nutrient quantity order or grouped by food with totals for each food group (see Appendix III for a list of food groups). Click the button for the option required. Click the print button at the top of the Print Preview page to make a hard copy of the list.

If some foods have been removed from the bottom of the sorted list, the totals given are for the remaining foods.
6.3 **Labelling**

You must first have a list of foods selected. From the *Analyse* menu select *Labelling*. The screen shot below shows this window with the list of foods from the file `manual.fl2` included with the software and with the *Nutrients* tab selected:

### 6.3.1.1 Label Nutrients

The format of this table is based on the requirements described in directives from the UK Ministry of Agriculture, Fisheries and Food and the European Community. Label values left blank by FSA have been calculated as specified in these documents, using the guidance given in the 6th edition of McCance and Widdowson’s *The Composition of Foods*, page 23.

The protein value is derived from the total nitrogen value for the food list and the energy values are **calculated** from the fat, protein, carbohydrate and alcohol total values using the conversion factors given in that publication.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Quantity</th>
<th>Unit</th>
<th>Status</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy kcal</td>
<td>68.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy kJ</td>
<td>283.34</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>3.51 g</td>
<td>g</td>
<td>6.25 x Nitrogen</td>
<td></td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>6.99 g</td>
<td>g</td>
<td>Total Label CHO</td>
<td></td>
</tr>
<tr>
<td>of which Sugars</td>
<td>3.37 g</td>
<td>g</td>
<td>Total Label Sugar</td>
<td></td>
</tr>
<tr>
<td>of which Starch</td>
<td>2.96 g</td>
<td>g</td>
<td>Total Label Starch</td>
<td></td>
</tr>
<tr>
<td>Fat</td>
<td>2.85 g</td>
<td>g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which saturates</td>
<td>1.33 g</td>
<td>g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibre (Southgate)</td>
<td>0.17 g</td>
<td>g</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Fibre (NSP)</td>
<td>0.63 g</td>
<td>g</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Fibre (ADAC)</td>
<td>0.37 g</td>
<td>g</td>
<td>#</td>
<td></td>
</tr>
<tr>
<td>Sodium</td>
<td>91.79 mg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.3.1.2 Label Foods in weight order

The list of ingredients is displayed in weight order with percentage of total weight shown. Water lost in cooking can be entered in the box provided on screen and the percentage of total weight for each ingredient is calculated automatically in the format used in Quantitative Ingredient Declarations (QUID). Information on labelling regulations can be found at the Food Standards Agency website at http://www.foodstandards.gov.uk.

![Labelling Information](image)

The print preview option offers a quick print of nutrients alone, foods alone or nutrients and foods together. Alternatively, a rich text file of nutrients and foods can be saved for use with any word processor.
6.4 Statistics

From the Analyse menu select Statistics.

Before highlighting the files of nutrient totals to be analysed, select the type of analysis you want. This can be nutrient totals, divided totals or percentage of recommended values. Percentages of recommended values are only available if a set of reference values was selected for comparison before a totals file was saved. The method of saving nutrient totals files is described in section 6.1.1.2.

To select files for comparison, click each file name in the file box required for the analysis followed by the Select File button. To select several files at once, hold down the Ctrl (Control) key while clicking on each file required then click Select File to add the selected files to the grid. To select several consecutive files, click the first file you require, move the cursor to the last file you require and hold down the shift key while clicking the file. Click the Select File button to add the selected files to the grid. To clear the selection and start again click the Start New button.

Nutrient totals files in the current folder are displayed in the Files box. Use the Folders box to change to a different folder to display other nutrient totals files you have saved.
When you have completed your selection click the Analyse button. Statistical comparison of the selected files, including mean, standard deviation (StD), coefficient of variance (CV) and range (max,min) will appear in the bottom grid. Only the nutrients selected in the current subset (see section 7.3) are displayed.

The screen shot below shows the Statistics window with three nutrient totals files selected for statistical comparison.

![Statistics window with nutrient totals files selected for statistical comparison](image)

To print the data click the Print Preview button. The screen shot below shows an example print preview of the statistical output for three files of nutrient totals with Nutrient Totals selected.

![Example print preview of statistical output](image)
To make a hard copy, click the print button at the top of the page.

Note: A file of nutrient totals for a food list can be saved using the Save Totals button in the Nutrient Analysis window (see section 6.1.1.2). If a divisor or a set of recommended values is selected, these will be saved with the totals.

Exporting sets of nutrient totals for use with other programs

To export the set of nutrient totals, divided totals or percentages of recommended values to a comma delimited text file click the Export to text button on the Statistical Comparison of Nutrient Totals Files page:
Each line of the text file contains a file name, divisor, the name of the recommended values chosen for comparison and up to 84 main nutrients.

Select *All nutrients* for the 84 main nutrients or *Selected set* for your selected nutrient subset of up to 28 main nutrients. To save the data to a text file, click the *Save to text file* button. You will be prompted for a file name. The file will be saved with the .txt extension for use in other programs.
7 Options

7.1 Edit Meal Names

From the drop down Options menu select Edit Meal Names:

To change the meal name, click the Item number of the meal name you wish to change. Click the Name box provided and enter the new name. Click the OK button to display the new name in the grid. The item numbers and meal codes cannot be changed and extra meals cannot be added.

Click the Save Changes button to make changes permanent.

Note: If you open food lists previously saved with meal codes the meal names will be replaced by the new ones.
7.2 Edit Nutrient Names

From the Options menu select Edit Nutrient Names:

For the main nutrients, the nutrient names, short names and unit names can be changed. For fatty acids, the long names can be changed.

To change a nutrient name, click the nutrient name in the grid and type in the new name with length up to 20 characters. Enter the short name with length up to 6 characters and the unit name with length up to 4 characters. Click the Save Changes button to make the changes permanent.

To retrieve all main nutrient names supplied with “Microdiet” click the Revert to names supplied with “Microdiet” button.
7.3 Select a nutrient subset for display

From the Options menu select Select Nutrient Subset.

To select or deselect a nutrient, click the box next to its name. To deselect all nutrients click the Select None button and all boxes will be blanked. To select all nutrients, click the Select All button and all boxes will be ticked. To select/deselect amino acids or fatty acids, first click the appropriate tab to change the nutrient page. The Select All and Select None buttons apply only to the current page. When all the required nutrients are ticked, click the Apply Changes button and the selected nutrients, amino acids and fatty acids will be used for the current analysis. If you click the Save As Default button, your selection will apply to the current analysis and will also be saved as the default set which is used automatically when the program is started next time. If you regularly change the set of nutrients for analyses it may be a good idea to save the selected set to a file so that you can recall it when needed. To save the selection, click the Save To File button and you will be prompted for a filename. The file will be saved with extension .nss.

To recall a previously saved set from file, click the Get From File button, open your selected file and it will automatically apply to the current analysis.
To recall the default set, click the *Get Default* button and it will automatically apply to the current analysis.

Note: If more than 28 nutrients are selected, only the first 28 will be displayed on spreadsheets etc. However, when viewing main nutrient totals on the analysis page or in the report module, you can switch between the selected subset and all nutrients.
7.4 Order Nutrients

From the Options menu select Order Nutrients:

To move a nutrient to a different position, click the nutrient to highlight it, enter the new position in the box provided and click the Move to position button. When you have all the nutrients in the order you require, select it as the default set by clicking the Save as default order button. To save the order for future use click the Save order to file button, select a folder and filename and click the Save button. Your file will be saved with extension .ons.

After changing the nutrient order, close and restart “Microdiet” to ensure accurate nutrient analyses.
7.5 Reference values

From the Options menu select Select Reference Values.

Tables of reference values provided with the “Microdiet” program are the DHSS 1979, the USA 1980 and three tables of COMA values from the Report on Health and Social Subjects, 41, Dietary Reference Values for food energy and nutrients for the United Kingdom, HMSO 1991, and the corresponding guide. COMA triplet combines the three COMA tables LRNI, EAR and RNI. Appendix IV describes the relationship between the nutrients discussed in the COMA standards and those used in the software. When a COMA table is highlighted, a box for selection of physical activity level (PAL) is displayed. The default value of 1.4 corresponds to ‘moderately active’.

When the screen is opened, reference values for DHSS 1979, boys 0-3 months are displayed. Click another group to see its reference nutrient values. To see values for a different table click the down arrow at the right hand side of the list box displaying DHSS 1979 RDA and click the table you wish to see. Because COMA triplet uses values from the three previous tables, the nutrient boxes remain empty when this table is selected.

To select a set of reference values for comparison with nutrient totals click the group of your choice then click the Select RV button. The
selected set will then be used for comparison with nutrient totals in the analysis screens.

Note: When the COMA tables LRNI, EAR, RNI and COMA triplet are displayed, the units for some nutrients are changed. These are Thiamin and Niacin, where the recommended amounts are per 1000 kcal, vitamin B6, where recommended amounts are per gram of protein, and fat and carbohydrate, where recommended amounts are given as percentages of energy.

Setting up a new standard
To set up a new set of recommended nutrient values, click the New Table button and you will be prompted for the name of your new set of tables. Enter a name of up to 40 characters and click the OK button. The Group Name grid on the left-hand side of the screen will now be empty. To enter a new group, click the first row of the group name table and type in the name, up to 40 characters, of your first group. To enter nutrient data, click the empty box next to each nutrient name for which you have data and enter the quantity. Click other nutrient boxes and enter data as required. The data is written to the database as soon as the cursor is moved to the next nutrient. To enter your next group, click the second row of the group names table and type in your second group name. Enter nutrient data as before. Up to 40 groups can be entered for each new standard.

The name of your new set of tables will be added to the list of Tables of Recommended Nutrient Intakes in the top left hand box and a group of reference values from your set of tables can be selected for comparison with food list totals in the same way as for the DHSS, USA and COMA tables.

Deleting a standard
The list of available standards is shown at the top left of the window. To view the full list, click the down arrow at the right of the box. Click the name of the standard that is to be deleted. Check that the displayed standard is the correct one and click the Delete Table button. A warning message will ask if you are sure you wish to delete the table. If you click the Yes button, the whole table, with all forty groups for that standard, will be deleted from the database. You cannot delete any of the standards provided with “Microdiet”.
7.6 Show/Hide Data Sets

From the Options menu select Show/Hide Data Sets

This option allows you to select the foods you want to include in the User’s Choice from McCance dataset.

Deselecting a dataset from this list does not remove it from the database.
7.7 List Files in a Selected Folder

From the Options menu select List Files in a Selected Folder:

The screen shot shows the list of files which can be found in the UsersFiles folder after installation of “Microdiet”. The default path is:

C:\Program Files\MicrodietV2\UsersFiles

Use the scroll button to see the rest of the list.

To print a copy, click the Print button.
8 Database

On the main menu select Database to see a drop down menu of Database options:

8.1 Edit/View Food Tables

From the database menu, select Edit/View Food Tables:

![Database Menu Screenshot]

The list box at the top of the screen contains a list of all the data files available on your system. This includes the McCance 4th edition data, immigrant data, McCance 5th edition data, all supplements to the 4th and 5th edition, McCance 6th edition data, a file for your own foods (User’s Own Foods) and several other datasets. To see the full list of food tables available, click the right hand down arrow. Scroll up or down to find the food table you want. Click the data to be viewed and the first food in the selected dataset will be displayed. Five pages of nutrient data are available (main nutrients, amino acids, fatty acids, portions and ratios). Click the appropriate tab to see the required set.

The Database Navigator provides functions for editing and moving through the data. As you pass the cursor over each Navigator button, a ‘hint’ is displayed giving the function of the button.
The arrow buttons allow movement through the data set one item at a time, or to the end or beginning of the data set. To move to a specific food in the selected data set, type the food code in the box to the right of the table and click the OK button (the food code must be in the selected food table).

To edit the record which is displayed, first click the edit button on the Database Navigator then select the page of nutrient or portion data required. Click each cell for which the nutrient value is to be changed and enter the new value. When all changes for this food have been made, click the Navigator post button. This posts the changes to the database making them permanent. Clicking the Navigator cancel button or moving to a different food record without clicking the Navigator post button cancels all the changes made to the current food record. Once the post button is clicked, the changes cannot be undone. The refresh button fetches the record from the database. This will be the original record if new data has not been posted to the database.

A delete button is only available on the database navigator when the User’s Own Foods dataset is selected. To delete a food from this dataset, click the delete button when the food is displayed.

Warning. The food records in the tables supplied with “Microdiet” cannot be deleted and although it is possible to edit nutrient values, we recommend that only portions and Extra Nutrients should be changed.

Note: Ratios cannot be edited by the user. They are re-calculated automatically by the program when their component nutrients are changed.

**Portion sizes**

One of the five nutrient data pages contains portion sizes. The program is supplied with up to six portion sizes for each food. Click the Portions tab to see them. Portion values were obtained from several sources, including the Ministry of Agriculture, Fisheries and Food, “Food Portion Sizes”, 1988 by Helen Crawley, and from supermarket packs.

A carbohydrate exchange portion (CHO X) is the weight of the food that contains 10 grams of carbohydrate. The amount is calculated by the program for each food as required. Since it is directly related to the carbohydrate content of the food, the user cannot change it.
Portion names and gram quantities can be entered or changed. The number of grams for a portion size can be different for different foods even if the portions have the same name. The portion name can be up to ten characters in length.
8.2 Create a New Database Food

From the Database menu select Create a New Database Food.

Enter the required information in the boxes provided. A unique food code is required. This can be made up of characters or numbers of your choice up to ten characters in length. The food name can be any string up to 65 characters in length. The food group must be selected from the drop down list available. Click the tab of each nutrient page to enter data.

If you know of a similar food on the database, you can “borrow” the data by entering its code and clicking the OK button. All of the nutrient, amino, fatty acid, portion and ratio data for the borrowed food will be entered into the pages for your new food. You can change items of data on any page except Ratios by clicking on the appropriate slot and entering new data. Ratios are calculated automatically from their component nutrients before the record is saved.

When you click the Main Nutrients tab you will be asked if you are entering data from a food label. If you click the Yes button the following window opens:
This window will help you to correctly convert the label data and enter it in the correct fields.

When you have finished, click the *Save to Database* button and the new food will be saved to your *User’s own foods* data set with the code you have given it.

If you wish to delete a food record, click the *Delete record* button on the database navigator.
8.3 Make a Food list into a new Database food

A recipe can be stored in the food tables as a single food.

You must first have a list of foods selected. From the Database menu select Make Foodlist into a new Database Food.

![Image of Make a list of foods into a single database food item dialog box]

Enter the information required. A unique food code is required. This can be made of characters or numbers of your choice up to ten characters in length. The food name can be any string of your choice up to 65 characters in length. The food group must be selected from the drop down list available.

If water is an essential ingredient in the recipe (e.g. soup or stew) it can be added to the recipe as an ingredient in the food list (food code DW, or 17377 distilled water). Alternatively it can be entered in the Water added box at this stage.

The water lost in cooking is calculated from the total weight of ingredients before cooking, less the total weight of the cooked food. If the product weighs less after cooking than the total weight of the ingredients then the weight loss is a positive quantity. The weight loss can be a negative quantity, for example when water is absorbed when boiling pasta.
The total gram weight of food in the food list is shown to assist you in selecting portion sizes. For example if the recipe is sufficient for a dish for four people then a single portion size would be one quarter of the total gram weight. Click the Portions tab and enter each portion name together with its gram weight.

Click the Make button to save your new food to the User’s own foods data set. The food list has now been saved as a single food on the database with nutrients for 100g of the food list.

Note: Ratios are calculated automatically from their component nutrients before the record is saved.
8.4 Finding foods High or Low in a Nutrient

From the Database menu select Find foods High or Low in a Nutrient:

The top left hand grid displays a list of main nutrients and ratios together with some statistical information for each nutrient. The average, lower quartile, median and upper quartile values have been calculated for each nutrient from data provided for all of the foods in the McCance 6th Summary Edition dataset. These values are intended to help you to make an informed decision when selecting nutrient limits. Scroll down the window to see the rest of the nutrients.

To select a nutrient target, click the chosen nutrient then click the sign > (greater than) or < (less than), enter a target quantity and click the Add button. The target will be added to the list in the Nutrient targets grid. When you have selected all the targets you require click the Search button. All foods on the database meeting your nutrient criteria, together with nutrients per 100g of food for each of the selected nutrient targets, will be displayed in the bottom grid.
The bottom left hand grid of the screen shot above shows all foods from the McCance Summary Edition dataset that meet the nutrient requirements set. These were:

- iron greater than 2mg per 100g
- calcium greater than 70mg per 100g
- energy from carbohydrate greater than 60%
- energy from fat less than 15%

To sort the list of foods in order from highest to lowest content for a nutrient, click the nutrient column heading.

To see the list in print format, click the *Print List* button:

Use the scroll buttons to see the rest of the list. To print the list, click the *Print* button.
8.5 Alternative Food Names

This option is only available for foods in the McCance and Widdowson dataset.

From the Database menu select Edit Alternative Food Names:

Alternative names for some McCance and Widdowson foods are provided with the database. These can be viewed in the alternative names grid at the top of the screen. For example, “Plum pie” is provided as an alternative name to “Fruit pie, one crust”.

To view all alternative names provided, scroll down the Alternative Food Names grid. As you scroll down you will see the database food name for each alternative name appear in the Database Food Name box. You can have more than one alternative name for a food. For example, “Gooseberry pie”, “Rhubarb pie” and “Plum pie” are alternative names provided for “Fruit pie, one crust”.

To enter a new alternative name for a McCance and Widdowson food, type the food code in the Enter Food Code box and press the Enter
key. The database food name for this food will appear in the Database Food Name box. Enter the alternative name you require for this food in the Enter Alternative Name box and click the Add button. You will see the alternative name added to the bottom of the list in the Alternative Food Names grid.

Alternative food names can be found in the “User’s choice from McCance” dataset.

To delete an alternative name, click the entry in the Alternative Food Names grid and click the Delete button. You cannot remove any of the alternative names provided with “Microdiet”.

Note: When entering a McCance and Widdowson 6th Edition food in the Enter Food Code: box the correct food code must be used. The book number (prefixed by 6-) cannot be used.
8.6 List User’s Foods

From the drop down *Database* menu select *List user’s foods*.

The “Microdiet” system number, food code, food name and food group are listed for each food added to the *User’s Own Foods* dataset using the *Make Foodlist into a new Database food* and *Create a New Database Food* options on the drop down *Database* menu.

To print the list, click the *Print* button.
8.7 Units of weight

From the Database menu select Edit Units of Weight. Five units of weight are included with “Microdiet”. These five units cannot be deleted or changed.

To enter a new unit of weight, type a name, up to six characters in length, in the box labelled Name. Enter the weight of the new unit in grams in the box labelled Gram weight and click the OK button. The new unit will be added to the list in the left-hand grid and will automatically be offered as an alternative weight in the food list window.

To delete a unit numbered six or greater, click the unit and click the Delete button. “Microdiet” will ask you to confirm the deletion before removing the unit.
8.8 Clients

From the *Database* menu select *Edit/Select Client:*

To select a client, click on the client record to highlight it and click the *Select* button. Recommended values for the selected client will be used for comparison with nutrient totals in the analysis and report options and the client’s information will be shown at the top of reports if selected here and on the Report window.

To print a list of all clients with their details, click the *Print Preview* button.
To enter a new client, on the Client List window click the New button. The Enter/Edit Client Details window will then be displayed:

![Image of Enter/Edit Client Details window]

Date of birth should be entered in the format 19/02/1980. Height can be entered in feet and inches or in metres. Weight can be entered in stones and pounds or in kilograms. Body Mass Index (BMI) is calculated automatically (weight in kilograms divided by the square of the height in metres). The BMI can be used to assess the degree to which a client is overweight. A BMI of below 20 is underweight; 20-24 is desirable; 25-30 is overweight and above 30 is considered to be obese.

To select a set of recommended nutrient values for comparison with nutrient totals for this client press the Select RV set button, select the appropriate set, click the Select RV button and click OK.

When complete, click the Save button to add the record to the end of the Client List.

To edit information for a client, click the appropriate ID number on the Client List window and press the Edit button. Edit the client’s information on the Enter/Edit Client Details window and press the Save button.
8.9 Backup data

We recommend that you backup the relevant data files after importing User’s Foods and updates from a previous version of “Microdiet” database, and afterwards at regular intervals when changes have been made to the new database.

If any “Microdiet” windows other than the Backup Database window are open then close them before starting the backup process.

From the Database menu select Backup Database.

Files can be backed up to the floppy drive or to any folder on the hard drive but we recommend backing up to floppy disks. Place a blank, formatted disk in the floppy drive. In the Drives box select a drive letter.

If you have entered new foods using the New Food or Make Food options or if you have edited User’s Foods, for example by adding new portion sizes, or if you have made changes to the Tables of Recommended Values then click the Backup User’s Data Files button. If you have made changes to any of the extra nutrients or portion sizes for any FSA foods, i.e. any foods other than User’s Own Foods, then click the Backup FSA Data Files button. If the backup files require more than one floppy disk you will be prompted to place a new blank disk in the floppy drive.
If you are not sure what to do, backup both sets of data files starting with a blank floppy disk for each set.

The User’s Files will be compressed to the zip file, V2userdata.zip and the FSA Data will be compressed to V2FSAdata.zip.

Carefully label the disks for each set of data.

Files of food lists, *.fl2, and of nutrient totals, *.nt2, can be copied uncompressed to other directories or to floppy disk using the Windows file copying facilities.

**Note** The backup files V2userdata.zip or V2FSAdata.zip can be used to transfer your new or updated foods to a user at another site (see section 8.11).

### 8.10 Restore data

If any “Microdiet” windows other than the *Restore Database* window are open then close them before starting the restore process.

From the *Database* menu select *Restore Database*.

![Restore Database window](image)

Place the appropriate backup data disk in the floppy drive. If your floppy drive letter is different from a, enter the floppy drive letter in the box provided. Click the appropriate *Restore Data Files* button.
The restored files will **overwrite** existing database files on your system. Any changes made to these files since the last backup will be lost.

If you are restoring data after a hard disk crash, you will need to reinstall the “Microdiet” program **before** restoring the data files.
8.11 Import Foods

New or updated food records can be imported from a DOS or Windows version of “Microdiet”. From the drop down Database menu select Import Foods. Four options are available.

8.11.1 Import User’s Foods from a Windows version of “Microdiet”

For transfer of User’s food records from a Windows version of “Microdiet” click the User’s Foods from Windows “Microdiet” button.
Insert the floppy disk containing the backup file userdata.zip to import from “Microdiet” Windows version 1 or V2userdata.zip to import from “Microdiet” Windows version 2.

“Microdiet” extracts files from the Zip file into a temporary folder on your hard drive and then adds foods with a unique code number to the database.

If a food code is not unique you will be asked if you wish to replace the food on the database with the import food:

![Confirm]

The result of your selection is as follows:

If you press the Yes button, the food is replaced and “Microdiet” moves to the next food to be imported.

If you press the No button, “Microdiet” moves to the next food to be imported leaving the food unchanged.

If you press the Cancel button, the import process is stopped and no further changes are made.

If you press the No to All button, the import process continues to the end without further prompts. No further foods are replaced but all foods with unique food codes are appended.

If you press the Yes to All button, the import process continues to the end without further prompts. All foods with unique code are appended and all foods with the same food code are replaced.
8.11.2 Import User’s Foods from the DOS version of “Microdiet!

For transfer of user’s data from the DOS version of “Microdiet”, the following files must be copied from the “Microdiet” DOS version to the computer on which the Windows version of “Microdiet” is installed:

sums9.bat, foodnam.usr, nut.usr, ami.usr, fat.usr, portion.usr, foodalt.usr, nutnam., sums9.bat (or sums8.bat if transferring foods from DOS version 8).

In addition index.mcc is needed if you are transferring foods from DOS version 8.3 or index. if you are transferring foods from DOS version 8.2.

From the drop down Database menu select Import Foods and click the Import User’s Foods from DOS “Microdiet” button:

In the Folders list box select the folder containing the DOS files. Files with the *.usr extension will be displayed in the Files list box. Click the OK button and any new foods you have created using DOS “Microdiet” will be transferred to the Windows “Microdiet” database.
8.11.3 Import McCance and Widdowson data from a Windows version of “Microdiet”

For transfer of FSA portion sizes and extra nutrients from a Windows version of “Microdiet” from the drop down Database menu select Import Foods and click the McCance & Widdowson data from Windows “Microdiet” button:

Insert the floppy disk containing the backup file maffdata.zip to import from “Microdiet” Windows version 1 or V2FSAdata.zip to import from “Microdiet” Windows version 2.

“Microdiet” extracts files from the Zip file into a temporary folder on your hard drive.

Tick the box next to any Extra Nutrient or Portion Sizes for which you have made changes in your old Windows “Microdiet” that you wish to be transferred.

Click the Import Data button and changes made to the selected set of Windows “Microdiet” files will be transferred to your new Windows “Microdiet” database.

Note: If you use this option after you have made changes to your new “Microdiet” for Windows FSA data, then your changes will be overwritten by the old Windows “Microdiet” values.
8.11.4 Import McCance and Widdowson data from the DOS version of “Microdiet”

All necessary data files from the DOS version of “Microdiet” must be located on the same computer as the Windows version of “Microdiet”. These include foodnam.*, nut.*, ami.*, fat.*, portion.*, and foodalt.*.

From the drop down Database menu select Import foods and click the McCance & Widdowson data from DOS “Microdiet” button:

In the Folders list box select the folder containing the DOS files. Initially, the Files list box displays files with the *.usr extension. Click the row of the table containing the FSA data to be updated. The corresponding DOS files will be displayed in the files list box.

Tick the box next to any Extra Nutrient or Portion Sizes for which you have made changes in your DOS “Microdiet” that you wish to be transferred.

Click the Import Data button and changes made to the selected set of DOS “Microdiet” files will be transferred to the Windows “Microdiet” database.
A list of the changes made is written to a file named *changes.txt*. This file is saved to the folder containing your DOS files.

Note: If you use this option *after* you have made changes to the “Microdiet” for Windows FSA data, then your changes will be overwritten by the “Microdiet” DOS version values.
9 Optimise

This option allows you to automatically make minimal changes to quantities of foods in a food list to meet a set of nutrient target quantities. The option provided here was the subject of research at Salford University for a number of years. It is included in the package for research use. We would appreciate feedback from interested users.

9.1 Setup targets

To optimise a diet you must first have a list of foods selected. Select Optimise from the main menu followed by Setup Targets from the drop down list.

The target window is displayed:

Click the Main Nuts tab. Scroll the list of nutrient names until you see a nutrient for which you want to set a target amount. Click the nutrient. Click the Target Quantity box and enter the amount you want the nutrient to be limited to in the final diet. If you want the foods to contain less than the amount, click the < circle in the Target Sign box. If you want more than the amount, click the > circle. Then click the Add to List button. You will see the target details added to the top left-hand grid. Continue this method to add other targets to the list. Unless it is essential to have an exact amount of a nutrient, it is
better not to set targets for nutrients to be equal to an amount. Equality targets are difficult to meet.

Apart from targets on main nutrients you can set targets for energy ratios and for p:s ratio (ratio of polyunsaturated fat to saturated fat) by clicking on the Ratios tab. Targets on amino acids can be set to bring the essential amino acids closer to the ideal ratios, see Appendix V for more information.

Click the Save to File button to save the list of targets to a file. The file will be saved with extension .otr (optimisation target records).

9.2 Calculate food quantities

Click the Calculate button and the program will calculate the smallest changes that can be made to quantities of the foods on your list so that your nutrient targets are satisfied. The OldTot column of the grid shows the original amounts for the targeted nutrients. The NewTot column shows the amounts after optimisation.

To see the effects of the calculation on quantities of foods, select Window from the main menu, and from the list of open windows click the food list window. The column OldQuant shows the original food quantities. The column labelled Quant shows the newly calculated quantities. Some of the quantities will have increased, some will have decreased and some will have been set to zero. The results of the optimisation can be confusing but it does indicate which foods in the list are causing problems for the particular set of nutrient targets selected.

At this point, remove, include, swap foods and re-run the optimisation until you have a list of foods in reasonable portion quantities, which meet the targets. You may be able to do this intuitively but some extra help is available in the program. Return to the target window and click the Best Food button or select Optimise from the main menu followed by Find Best Food from the drop down list.
9.3 Find best food

After targets have been selected and the Calculate Food Quantities option has been run, the Find Best Food option can be used to sort every food on the database in order of best food to bring into the diet:

In the screen shot above, a typical list is shown in the right hand grid. The best foods to bring into the diet have the highest negative shadow costs. Foods with zero or positive shadow costs should not be brought in. The selected food list is shown in the left-hand grid. Shadow costs are also given for these foods. Again high negative shadow costs indicate a food which is good for the particular set of nutrient targets selected. Conversely, a high positive value indicates a food which is not appropriate. This information can be used as follows. Any food on the ordered database which has a higher negative shadow value than a particular food on the selected food list, can be exchanged for that food to advantage. You can highlight a food on the best food list and click the How Much? button to find the optimal amount of the food to bring into the diet.

You can reduce the number of best foods shown by selecting a food group or by entering a food name string and clicking the appropriate Select button. Click the All Foods button to restore the full list.
Only one transaction can be carried out. For example if you have found *How Much?* for two different foods and the optimal amount for one is 30 grams and for the other is 50 grams, then the optimal quantity of only one of these foods can be added to the diet. After a food has been brought into the diet or has been exchanged for another food, click the *Calculate* button to optimise the diet again and then recalculate the best food list.

This process of altering a diet to meet multiple targets by exchanging foods using the ‘best food to bring in’ can be tricky and time consuming but it can produce successful results.

The list of targets can be saved to a file and recalled later for use with another set of foods.

At each stage of the optimisation process, *original* quantities of foods in the list are modified by the minimum percentage amount necessary to satisfy the nutrient targets you have set. Any new foods added to the list become part of this set of *original* quantities. Do not save the food list until you are completely satisfied with the component foods and quantities. If a food list is saved at one of the interim stages of optimisation when some of the quantities are too great or too small, the quantities at that stage will become the *original* quantities. When the food list is recalled for further optimisation, *calculate* will try to maintain these quantities.
10 Help

10.1 Contents

From the main drop down Help menu select Microdiet Help. Click the Contents tab to display a list of functions in “Microdiet”. Click any item on the list to obtain more information.

Context sensitive help is available elsewhere in the program by clicking the Help button provided in a window.

10.2 Nutrient information

From the drop down Help menu select Microdiet Help. Click the Contents tab to display a list of functions in “Microdiet”. Double click Nutrient information and Information from Norwich. Information for 21 of the major nutrients was provided by Professor DAT Southgate of the AFRC Institute of Food Research, Norwich. Click the nutrient required.
To see lists of all nutrients available in “Microdiet” double click *List of Nutrients*. Main nutrients, amino acids and fatty acids provided for foods in the “Microdiet” version 2 database are also shown in Appendix II.

11 Printing

Most windows have a button labelled *Print Preview*. Click this to see a preview of the information for that window in printed form. To obtain a hard copy, click the print button at the top of the print preview page. Some of the print previews are also available as part of a report (see section 5.9). There are exceptions. For example, labelling and nutrient contribution printouts cannot be printed as part of a report.
Appendix I Foods and nutrients database

UK Data
The UK foods and nutrients data supplied with “Microdiet” includes the following:


Supplements to the 4th edition of McCance and Widdowson's The Composition of Foods, published by The Royal Society of Chemistry:

3. Cereals and Cereal Products, 11001 to 11360
4. Milk Products and Eggs, 12001 to 12305 and 12801 to 12830
5. Vegetables, Herbs and Spices, 13001 to 13419 and 13801 to 13861

Supplements to the 5th edition of McCance and Widdowson's The Composition of Food:

1. Fruits and Nuts, 14001 to 14289 and 14801 to 14850
2. Vegetable dishes, 15001 to 15347
3. Fish and Fish Products, 16001 to 16308
4. Miscellaneous Foods, 17001 to 17418
5. Meat, Poultry and Game, 18001 to 18429
6. Meat Products and Dishes, 19001 to 19286

The 6th Summary Edition of McCance and Widdowson's The Composition of Foods, published by The Royal Society of Chemistry, 2002. The 6th Edition food codes have been added by FSA to existing supplements and are in the following number ranges although there are gaps:

11361-11623, 12306-12420, 12831-12926, 13420-13468, 13862-13871, 14290-14303, 14851-14882, 15348-15383, 16309-16340, 17419-17554, 18430-18494, 19287-19353
6th Edition book publication numbers (6-1 to 6-1235) as well as food codes are shown in the food entry module of “Microdiet”.

This nutrient data is subject to Crown copyright protection and has been reproduced under licence from the Controller of Her Majesty’s Stationery Office. It is supplied solely for use with “Microdiet” as agreed in the user licence, and may not be supplied, published or sold to others without the prior, written consent of the Controller of Her Majesty’s Stationery Office.

The Food Standards Agency website can be found at:
http://www.food.gov.uk

**Italian Data**
The Italian data supplied with “Microdiet” was produced by:

Epidemiologia Molecolare e Nutrizionale  
Centro per lo Studio e la Prevenzione Oncologica (CSPO)  
Istituto Scientifico della Regione Toscana  
Via di San Salvi 12 - 50135 Firenze, Italy.

The work was funded by the Italian Association for Cancer Research. The data should be cited as:


**American data**
The American data supplied with “Microdiet” was produced by:

U.S. Department of Agriculture  
Agricultural Research Service  
Beltsville Human Nutrition Research Center  
Nutrient Data Laboratory  
10300 Baltimore Avenue  
Building 005, Room 107, BARC-West  
Beltsville, Maryland 20705.
The data is titled:
  Composition of Foods
  Raw, Processed, Prepared.
  USDA National Nutrient Database for Standard Reference

The USDA Nutrient Data Laboratory website can be found at:
  http://www.nal.usda.gov/fnic/foodcomp

The short American food names were chosen for use with “Microdiet”.
A list of abbreviations used in short descriptions can be found in the
main “Microdiet” help.
**Appendix II  List of Nutrients**

### Main Nutrients

<table>
<thead>
<tr>
<th>nutrient name</th>
<th>short name</th>
<th>units</th>
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### Appendix III  Food sub-group codes

#### Cereals and cereal products

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Puddings and chilled desserts
Butter and related fats
  Ghees
  Butters
  Margarines
  Dairy/fat spreads
  Low fat spreads
  Very low fat spreads
Savoury dishes and sauces

**Eggs**
  Eggs
  Egg dishes
    Savoury egg dishes
    Sweet egg dishes

**Vegetables**
  Potatoes
    Early potatoes
    Main crop potatoes
    Chipped old potatoes
    Potato products
  Beans and lentils
  Peas
  Vegetables, general
  Vegetables, dried
  Vegetable dishes

**Fruit**
  Fruit, general
  Fruit juices

**Nuts and seeds**
  Nuts and seeds, general

**Herbs and spices**

**Baby foods**
  Baby foods, granulated/powder
  Baby foods, canned/bottled
### Fish and fish products

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<td>Wines</td>
<td>QE</td>
</tr>
<tr>
<td>Fortified wines</td>
<td>QF</td>
</tr>
<tr>
<td>Vermouths</td>
<td>QG</td>
</tr>
<tr>
<td>Liqueurs</td>
<td>QI</td>
</tr>
<tr>
<td>Spirits</td>
<td>QK</td>
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<table>
<thead>
<tr>
<th>Sugars, preserves and snacks</th>
<th></th>
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<tbody>
<tr>
<td>Sugars, syrups and preserves</td>
<td>SC</td>
</tr>
<tr>
<td>Confectionery</td>
<td>SE</td>
</tr>
<tr>
<td>Chocolate confectionery</td>
<td>SEA</td>
</tr>
<tr>
<td>Non-chocolate confectionery</td>
<td>SEC</td>
</tr>
<tr>
<td>Savoury snacks</td>
<td>SN</td>
</tr>
<tr>
<td>Potato-based snacks</td>
<td>SNA</td>
</tr>
<tr>
<td>Potato and mixed cereal snacks</td>
<td>SNB</td>
</tr>
<tr>
<td>Non-potato snacks</td>
<td>SNC</td>
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<table>
<thead>
<tr>
<th>Soups, sauces and miscellaneous foods</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Soups</td>
<td>W</td>
</tr>
<tr>
<td>Home made soups</td>
<td>WA</td>
</tr>
<tr>
<td>Canned soups</td>
<td>WAA</td>
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<tr>
<td>Packet soups</td>
<td>WAC</td>
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<tr>
<td>Sauces</td>
<td>WAE</td>
</tr>
<tr>
<td>Dairy sauces</td>
<td>WC</td>
</tr>
<tr>
<td>WCD</td>
<td></td>
</tr>
<tr>
<td>Salad sauces, dressings and pickles</td>
<td>WCG</td>
</tr>
<tr>
<td>Non-salad sauces</td>
<td>WCN</td>
</tr>
<tr>
<td>Pickles and chutneys</td>
<td>WE</td>
</tr>
<tr>
<td>Miscellaneous foods</td>
<td>WY</td>
</tr>
</tbody>
</table>
Appendix IV

Relationship between COMA standards and those used in the software

Nutrients for which there is a COMA standard. Numbers refer to pages in COMA guide.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>LRNI</th>
<th>EAR</th>
<th>RNI</th>
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<tbody>
<tr>
<td>Energy kcal</td>
<td>p12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Energy kJ</td>
<td>-</td>
<td>p12</td>
<td>-</td>
</tr>
<tr>
<td>Protein g</td>
<td>-</td>
<td>p15</td>
<td>p15</td>
</tr>
<tr>
<td>Fat %</td>
<td>p19</td>
<td>p19</td>
<td>p19</td>
</tr>
<tr>
<td>Carbohydrate %</td>
<td>p21</td>
<td>p21</td>
<td>p21</td>
</tr>
<tr>
<td>Sodium mg</td>
<td>p42</td>
<td>-</td>
<td>p42</td>
</tr>
<tr>
<td>Potassium mg</td>
<td>p43</td>
<td>-</td>
<td>p43</td>
</tr>
<tr>
<td>Calcium mg</td>
<td>p37</td>
<td>p37</td>
<td>p37</td>
</tr>
<tr>
<td>Magnesium mg</td>
<td>p39</td>
<td>p39</td>
<td>p39</td>
</tr>
<tr>
<td>Phosphate mg</td>
<td>p38</td>
<td>p38</td>
<td>p38</td>
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<tr>
<td>Iron mg</td>
<td>p40</td>
<td>p40</td>
<td>p40</td>
</tr>
<tr>
<td>Copper mg</td>
<td>-</td>
<td>-</td>
<td>p44</td>
</tr>
<tr>
<td>Zinc mg</td>
<td>p41</td>
<td>p41</td>
<td>p41</td>
</tr>
<tr>
<td>Chloride mg</td>
<td>p43</td>
<td>-</td>
<td>p43</td>
</tr>
<tr>
<td>Vitamin D µg</td>
<td>-</td>
<td>-</td>
<td>p33</td>
</tr>
<tr>
<td>Thiamin (B1) mg/1000kcal</td>
<td>p25</td>
<td>p25</td>
<td>p25</td>
</tr>
<tr>
<td>Riboflavin (B2) mg</td>
<td>p26</td>
<td>p26</td>
<td>p26</td>
</tr>
<tr>
<td>Nicot. acid mg/1000kcal</td>
<td>p27</td>
<td>p27</td>
<td>p27</td>
</tr>
<tr>
<td>Vitamin C mg</td>
<td>p32</td>
<td>p32</td>
<td>p32</td>
</tr>
<tr>
<td>Vitamin B6 mg/g protein</td>
<td>p28</td>
<td>p28</td>
<td>p28</td>
</tr>
<tr>
<td>Vitamin B12 µg</td>
<td>p29</td>
<td>p29</td>
<td>p29</td>
</tr>
<tr>
<td>Total folic acid µg</td>
<td>p30</td>
<td>p30</td>
<td>p30</td>
</tr>
<tr>
<td>Total saturates %</td>
<td>p19</td>
<td>p19</td>
<td>p19</td>
</tr>
<tr>
<td>Total monounsatd. %</td>
<td>p19</td>
<td>p19</td>
<td>p19</td>
</tr>
<tr>
<td>Total polyunsatd. %</td>
<td>p19</td>
<td>p19</td>
<td>p19</td>
</tr>
<tr>
<td>Selenium µg</td>
<td>p45</td>
<td>-</td>
<td>p45</td>
</tr>
<tr>
<td>Iodine µg</td>
<td>p45</td>
<td>-</td>
<td>p45</td>
</tr>
<tr>
<td>Retinol equiv. µg</td>
<td>p25</td>
<td>p25</td>
<td>p25</td>
</tr>
</tbody>
</table>

\(^2\) N.B. lactation
Other nutrients considered by COMA:

9  Fibre (Southgate) g see p22 for NSP
26  Retinol  µg see nutrient 64 Retinol equivalent
27  Carotene  µg see nutrient 64 Retinol equivalent
34  Vitamin E  mg see p33, no values set in program
39  Pantothenic Acid  mg see p30, no values set in program
40  Biotin  µg see p31, no values set in program
48  Cholesterol  mg
49  Glucose  g see p20, no values set in program
50  Fructose  g see p20, no values set in program
51  Galactose  g see p20, no values set in program
52  Sucrose  g see p20, no values set in program
53  Maltose  g see p20, no values set in program
54  Other sugars  g see p20, no values set in program
55  Fibre (Englyst)  g see p22 for NSP
57  Soluble polysacch  g see p22 for NSP
58  Insoluble polysacch  g see p22 for NSP
61  Manganese  mg see p46, no values set in program
65  Vit E a-tocoph equiv  mg see p33, no values set in program
Appendix V

Amino acid balance

The diet optimisation section allows targets to be set for essential amino acids. The program lists essential aminos provided by the diet as ratios of ‘ideal’ values.

These ‘ideal’ values are the proportions of essential amino acids to nitrogen (mg amino acid per g nitrogen) which are said by one author to be:

<table>
<thead>
<tr>
<th>Amino Acid</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoleucine</td>
<td>250</td>
</tr>
<tr>
<td>Leucine</td>
<td>440</td>
</tr>
<tr>
<td>Lysine</td>
<td>340</td>
</tr>
<tr>
<td>Methionine + cystine</td>
<td>220</td>
</tr>
<tr>
<td>Phenylalanine + tyrosine</td>
<td>380</td>
</tr>
<tr>
<td>Threonine</td>
<td>250</td>
</tr>
<tr>
<td>Tryptophan</td>
<td>60</td>
</tr>
<tr>
<td>Valine</td>
<td>310</td>
</tr>
</tbody>
</table>

If this is correct, then the optimum value of the ratios is 1.0 and targets for essential amino acids should be set close to 1.0.

These ‘ideal’ values are taken from “Nutritional evaluation of protein foods”, Pellett P L and Young V R, United Nations University, Tokyo, 1980. Other papers suggest different ideal values, e.g. “Linear Programming controls amino acid balance in food formulation” by Cavins J F, Inglett G E and Wall J S, Food Technology, June 1972.
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  - modify food in database ............ 56
  - food code .............................. 85
  - allocated to database ............... 55
- food entry ................................ 16
- food groups ................................ 92
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  - create new food ....................... 58
  - delete user-food ...................... 56
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“Microdiet”

For Windows 95, 98, 2000 and Windows NT

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