The purpose of the workbook is to allow you to calculate the daily totals of important nutrients in your diet, simply by entering a code for each food you eat and the amount of that food. A daily spreadsheet pulls the nutrient content of each food from a dataset developed by the U.S. Department of Agriculture that was downloaded and incorporated into our workbook. It then adds up the total for each nutrient and calculates useful measures, such as the total calories, the percentage of total calories coming from protein, saturated fat, polyunsaturated fat and carbohydrates, and the total amount of fiber.

Each of the 8,000 or so food items in the USDA dataset has a code number associated with it. A food item can be as simple as a single ingredient, such as table sugar (19335 – SUGARS, GRANULATED), or it can be a complete meal item such as a McDonald's Big Mac (21237 – MCDONALD'S, BIG MAC) or a Pizza Hut pizza (21298 - PIZZA HUT 14" SUPER SUPREME PIZZA,REG CRUST).

Even with all those choices in the dataset, frequently it will be necessary to choose something that is not an exact fit but close enough. An alternative is to specify a meal item by its ingredients, one by one, which can be tedious. Avoid doing that as much as possible.

The idea, then, is to search for each of your food items in the dataset, find the best match for each one, make a note of their code numbers, and enter the code numbers into a daily spreadsheet. Once you get the hang of it, you can copy and paste the numbers without having to write them down.

OK, so let's get started! If you're having trouble with any of the steps below, send me an email or call me and I'll try to help you.

Note that in the directions that follow, 'click' means 'left click' unless otherwise specified. Items are often placed within a set of quotation marks to denote folder names, file names, menu items, cell contents, buttons and things to enter. When entries are indicated, do not include the quotation marks.

Download the "WhatToEat.xls" file that's attached to the email you were sent.
- Depending on the email program that you use, there might be a link that says "Download attachment; if so, click that link. Alternatively, the name of the attachment might be displayed as a button; in that case, right-click the button.
- A menu pops up. Click "Save" or "Save As". If you are not given the option of specifying where to save the file, it probably will be saved to your "Download" folder.

Now open the "WhatToEat.xls" spreadsheet.
- Usually the file is in your "Download" folder.
- Open Windows Explorer, navigate to the "Download" folder, find the "WhatToEat.xls" file, and double-click it. It should be opened by Excel, assuming that you have Microsoft Office on your computer.

Initially, there are three spreadsheets: "Data_Lookup", "Template_Code", and "Data_Full". You should never have to access "Data_Full" directly. It holds the nutrient data from the USDA.

Before you do anything else, save your own personal copy of the workbook.
- Click "File" at the top of the screen
- Click "Save As"
- Give the workbook a personal name, such as "Tom". From now on, open "Tom.xls" rather than

"WhatToEat.xls". If anything goes wrong and you have accidentally damaged "Tom.xls", you'll be able to start over fresh from "WhatToEat.xls".

Click the tab "Template_Code" at the bottom of the window. "Template_Code" looks empty except for a bunch of zeroes, but serves as the model for each new day of food entries. You won't enter data directly into "Template_Code", but rather make a copy of it for each new day of entries. Give a name to each new spreadsheet signifying the day it represents. If you're doing just one week, you can call the copy "Monday", for example. If you're doing more than a week, you might want to name it by the month and day, such as "May 22". Computer programmers often use "year-month-day", for example, "20140522", which is understood to be May 22, 2014. Use whatever suits you; it's not important.

Copy the "Template_Code" spreadsheet.
- Right-click the "Template_Code" tab. A menu will pop up.
- Left-click the "Move/Copy" menu item.
- The dialog box that pops up includes a list of all spreadsheets that exist within the workbook. To specify where to place the copy relative to the existing spreadsheets, click the name of the spreadsheet *in front of which* the new spreadsheet is to be placed. You want each new sheet to be placed in front of the sheet immediately following "Template_Code", so that it will remain within easy reach. The first time you make a copy, click "Data_Full" within the list of spreadsheet names. If the name of your first copy is "May 22", then the next time you "Move/Copy", click "May 22" so that the new sheet is placed between "Template_Code" and "May 22".
- Depending on the version of Excel used, the dialog box includes a button labeled "Copy" or a check box labeled "Create a copy". Click the button / check box to cause a copy to be made.
- Click the "OK" button.
- If you forget to click 'Copy', the "Template_Code" spreadsheet is only moved, not copied; in that case, just follow the described copy procedure again.

Rename the new copy of the spreadsheet.
- Initially, the new spreadsheet is named "Template_Code(2)".
- Either (a) double-click the tab for "Template_Code(2)", or (b) right-click the tab and left-click the "Rename" menu item in the pop-up menu. The name on the tab becomes editable.
- Enter the desired name, for example, "May 22".

Most cells of "Template_Code" have formulas in them that are fairly complex. If you accidentally change them, then the spreadsheet won't work as designed. So we protected "Template_Code" from being changed; by default, its copies are protected also. To see what happens when you try to change a protected spreadsheet, click the cell on row three in the "Code" column of the new spreadsheet. Try to enter "4". As you start typing, a box pops up, warning you that the cell is protected. Click "OK" to close the pop-up box.

"Template_Code" has been protected, but you need to be able to make changes to your copy.

"Unprotect" the new copy of the spreadsheet.
- Right-click the spreadsheet's tab ("May 22" or whatever it is named). A menu pops up.
- Depending on the version of Excel that you use, there is either a "Protect sheet" menu item with a check by it (indicating that the sheet is protected), or an "Unprotect sheet" menu item.
- Click on the menu item to unprotect the spreadsheet.

- Now that the spreadsheet is unprotected, you can make entries in any cell.

Enter What You Ate
- Food entries start on row three. (Row one contains the column headings; row two is blank.)
- Click the cell in row three, in the column labeled "Code".
  Enter the code for a food that you ate, for example, "42265" and hit the Tab key.
- The cursor moves to the next cell on row three, in column "Serv (g)".
  Enter the serving size in grams, for example, "70". Hit the Enter key.
- You will notice that many cells of row three are filled in automatically. The data for that item, (which for code "42265" is a breakfast cereal) are pulled from the dataset, and multiplied by the serving size to get the corresponding amount of each nutrient.
- After you enter a code in the "Code" column, the corresponding item description and gram weight information is displayed in the two rightmost columns, "Item Description" and "Gram weights and descriptions". Scrolling might be required to see these two columns. For long descriptions, the row height can be expanded by double-clicking the line at the very left of the row that separates the row number for the current row from the row number of the following row. Review "Item description" to confirm that the code you entered is the one that you intended. Optionally, you can enter a description manually in the first column, "Item", to describe the actual food you ate and its amount in the units you normally use, for example "Great Grains cereal, 1 cup". You can refer to "Gram weights and descriptions" to help determine the amount eaten in grams to use in the column "Serv (g)".

Take a look at row 27. As you enter each food item, the totals for the day for all items entered up to that point are immediately reflected in the numbers on line 27. Below the totals are the percentages of calories for each nutrient. So now all that's necessary is to look up all your food items in the dataset and enter them, row by row, until you have entered the entire day's dietary intake. Once they are all in, the totals and percentages are right there for you to see.

Look up the codes for food items in the "Data_Lookup" spreadsheet.
- Click the "Data_Lookup" tab.
  - The first column is "Code", the number that you'll enter on the daily sheet for the item.
  - The second column is the item description. You will scan through these descriptions to locate the specific item that matches what you ate.
  - The third and fourth columns are entries for "gram weight" and "gram weight description". Look at the item in row 6, "acerola", which is a West Indies cherry. The cell in the third column has "98" and the fourth column cell has "1 cup". This indicates that 1 cup of cherries weighs 98 grams. The code for "acerola" is 9001.
  - The fifth and sixth columns might contain additional entries for gram weight and description. For "acerola", cells in columns 5 and 6 contain "4.8" and "1 fruit", indicating that an average size cherry weighs 4.8 grams. Thus two options are available for estimating the number of grams for a serving of cherries, one based on the number of cups eaten, another based on the number of cherries eaten.
  - Going back to the daily sheet, you would enter "9001" in the Code column. Suppose you ate one and one-half cups of cherries. You could multiply 1.5 times 98 on your calculator and enter the result, 147, in the Serv(g) column. Or you could enter a formula into the cell, "=1.5*98". The "equal sign" informs Excel that you are entering a formula. Excel will then do the calculation for you.

- That's the easy part. It's a bit more challenging to find the item you're looking for. One problem is that the dataset description uses a lot of cryptic abbreviations that take some getting used to. What do you think "RTE" stands for? Turns out, that's "Ready To Eat". "BRLD"? "Broiled". "RSTD"? "Roasted". And similar items may not be close together in the dataset, so it can take a bit of searching to find exactly what you are looking for. With a bit of practice, it gets easier.

- A useful tool in searching for specific items is the "Find" function in Excel. You call it up by pressing Ctrl+F, or through the Edit menu. Since you can only match one group of letters, it is limited in its usefulness.

- Another, more versatile, tool is the Filter function. It works a bit differently in different versions of Excel. We will describe its use in Excel 2007. Click on the "Data" menu tab. One of the choices is "Filter". Move your mouse cursor over the "Filter" icon to see that Ctrl+Shift+L is the keystroke to turn Filter on. You can press F1 for Help with Filter. The Filter (or AutoFilter, as it may be called in other versions) is turned on in the "Data_Lookup" sheet by default, so you don't have to do anything to use it. Notice that each cell in row 1 has a blue button with a triangle pointing down. Click on the button in the "Description" cell. A menu of choices is presented, one of which is "Text Filters". Click on that, and another menu opens, with "Equals", "Does Not Equal", and so on. Click on "Contains". In the pop-up box, the first line shows "contains" in one field and is ready for entry in the second field. Type in "cereal". Notice that the radio button "And" is pressed. In the field below "And", click on the button and choose "contains". In the last field, enter "Kellogg". Click on "OK". Now, instead of seeing 8000 items, you only see the 58 items whose description contains both "cereal" and "Kellogg". This very powerful tool should allow you to scan more quickly for the items you're seeking.

This has been a brief overview of how to use the "How to Eat" Workbook. Since this is its maiden voyage and you are its guinea pigs, we are eager to know how you make out with it. Please tell us about your experiences, good, bad or indifferent, so we can try to understand what we've done well and how we can improve it.

Edwin Cox, M.D., with valuable contributions to this document and the Workbook by Wilma Stanley

Addendum: As we went to press, we discovered some discrepancies in the USDA dataset between the values for total lipids and the sum of the lipid components, saturated fats, monounsaturated fats, and polyunsaturated fats. These two values (total and sum) should be equal, in our understanding, and they are approximately equal, within rounding error, for most food items. However, for some items, most notably a McDonald's Big Mac, the error approached 50%, with no ready explanation.

Another issue under scrutiny is whether fiber content of a food contributes to the stated calorie content. Fiber is not absorbed, and thus not available as an energy source to the body. Therefore the grams of fiber should be subtracted from total carbohydrates before multiplying by 4 cal per gram to calculate the energy from carbohydrates, and that's what we've done. For most items, especially cereals with high fiber content, this adjustment gives a calculated calories result matching the stated total calories.

Finally, alcohol calories are not included in any nutrient group, but they are included in the stated calorie count. The total calculated calories will be lower than total stated calories by the amount of the alcohol.