**CHS 269 Lecture (2)**

**Assessment of dietary intake**

**The sequence of assessing nutrient intake is to:**

* estimate **food intake** as g/day of different foods

• use food tables to convert g/day of each individual food to g, mg, or µ/day of various nutrients. These calculations can and always used to be done manually but computers are generally used

• compare this patient’s intake of one or several nutrients likely to be inadequate with **the dietary reference values of food energy and nutrients**.

**An important consideration is whether the day(s) on which food intake was measured were typical**.

**Food intake measurements:**

There are 4 types of method used to estimate individual food intake, and these are:

• Dietary history

• 24-hour recall

• Food diary or record

• Food frequency questionnaire

**Dietary history:**

—“What do you eat on a typical day?” This is a good method in the hands of a skilled and patient interviewer. Food models, cups, plates, and spoons are used to estimate portion sizes.

Following are sample open-ended questions you can use to obtain information

on the patient’s diet:

* What is a typical breakfast, lunch, dinner, or snack for you?

• What time do you normally have breakfast, lunch, dinner, or a snack?

• How often do you eat outside the home?

In conducting a thorough nutrition assessment, ask about the use of herbal/dietary supplements. Some patients do not consider this important information or realize that it can be potentially dangerous, so do not volunteer this information

**24-hour recall:**

—“Tell me everything you’ve had to eat and drink in the last 24 hours.”

This is less subject to wishful thinking about what the person ought to have eaten. The weakness is that yesterday may have been atypical; 24-hourrecalls can, however, be repeated.

 This method is quick and simple, however, increasing evidence indicates that many people underreport their total food intakes and this tendency is stronger in certain groups especially overweight people.

 A single recall is not adequate for measuring individual's usual intake, multiple records must be used.

**Food diary or record:**

—“Please write down (and describe) everything you eat and drink (and estimate the amount) for the next 3 (4 or 7) days.”

Amounts are usually recorded in household measures but for more accuracy subjects can be provided with quick reading scales to weigh food before it goes on the plate (and any leftovers).

 If records are obtained for a sufficient number of days and the client cooperated well, they can provide a good picture of usual current dietary intake, however, this method can only be used with educated people.

**Food frequency questionnaire:**

—“Do you eat meat/fish/bread/milk … on average: more than once a day/2 or 3 times a week/once a week/once a month etc?”

 The self-administered food frequency questionnaire is the newest of the four methods. It is much more economical of investigator’s time and suitable for computer analysis. This method has made possible cohort studies with thousands of subjects’ food intakes related to disease outcome. It asks for usual, typical intake. Estimating food intake quantitatively is so expensive. It depends on adequate memory and the honesty and interest of the subject. Some people’s food habits are very irregular and most people eat differently on Saturday and Sunday from during weekdays and on holiday.

 There is no “gold standard” method for food intake. Methods that ask subjects to record or remember the food/drinks they really consumed are better for national nutrition surveys of samples of the population. Items may be forgotten (or not listed because of embarrassment). For large epidemiological surveys food frequency questionnaires have enabled tens of thousands to be included. Relative consumption across the population is the aim here, rather than precise and specific quantitative results .



 **Biomarkers of dietary intake:**

 All estimates of food intake are subjective. Some subjects forget, some did not notice what food they ate, some do not report because they would be ashamed to admit having that food, drink, or amount. The search is on for biomarkers, which are objective biochemical indices of dietary intake. For some food components there are useful biomarkers; for others there is nothing available.

e.g Protein intake is reflected by 24-hour urinary nitrogen, intake of individual carotenoids can be seen in the plasma. Plasma lycopene, for example, reflects tomato intake. 24-hour urinary sodium is a much better indicator of salt intake than dietary history because the salt content of foods and dishes varies greatly and without the subject’s knowledge.

 Vitamin A and calcium are nutrients whose plasma concentrations cannot serve here; they are held constant across the range of usual intakes.

**Biochemical methods for diagnosing nutritional deficiencies:**

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**Food tables and nutrient databases**

 The British food tables are among the best in the world. The 5th edition of McCance & Widdowson’s the composition of foods was published in 1991,14 and there is a growing list of supplements. In the main volume 1188 foods and drinks arranged in 14 groups are given code numbers (which can be used for computer input—software packages are also available). The total publications, including supplements, cover around 2000 foods. Figures are given (per 100 g edible portion) for over 40 constituents. This software should contain the latest updates, revisions and additions to the database.





**Dietary reference values and requirements**

For nutrient intakes to have any meaning they have to be compared against some number representing physiological requirements for each nutrient .

