

Dietary Assessment Methods

Accurately assessing dietary intake is an important element of metabolic research. The three most common methods used to assess dietary intake are the following:

1. **Diet Record:** Subjects record all food and beverages consumed over three consecutive days (two weekdays and one weekend day). The consumed items can be measured using a scale or other household items, such as measuring cups or spoons, or estimated using a portion-size guide. Trained staff must provide detailed instructions on how to record intake and the completed records need to be entered into a software program, such as Nutrition Data System for Research (NDSR), for analysis.
2. **24-Hour Recall:** Subjects are asked to report all foods and beverages consumed in the past 24 hours. This can be done via telephone or face-to-face interview. Trained staff must conduct the interview to prompt for details, such as cooking methods and portion sizes. The data needs to be entered into a software program, such as NDSR, for analysis. Automated self-administered 24-hour recall technique is also now available at <http://riskfactor.cancer.gov/tools/instruments/asa24/>
3. **Food Frequency Questionnaire (FFQ):** Subjects report how frequently certain food and beverage items were consumed over a specific period of time (typically 1 year). Most FFQ versions ask portion size questions of every food item, as well as general questions about common cooking practices (e.g. type of fat typically added while cooking). Most FFQs are available in paper or electronic format and take about 1 hour to complete. Computerized software programs calculate nutrient intake by multiplying the reported frequency of each food by the amount of nutrient in a serving of that food. There are no data entry requirements for the study team. FFQs are usually validated for a period of 6 months or 1 year and repeat administration is not recommended for a period shorter than 6 months.

There are advantages and disadvantages to each method as outlined below:

	Advantages	Disadvantages
Diet Record	<ul style="list-style-type: none"> • Intake is quantified • Does not require recall • Allows self-monitoring which can influence behavior change • Provides typical meal and food pattern information 	<ul style="list-style-type: none"> • High subject burden • High staff cost and burden • Can alter eating behaviors • Requires literate population • Requires multiple records over several months to capture habitual intake
24-Hour Recall	<ul style="list-style-type: none"> • Intake is quantified • Less subject burden • Does not alter eating behaviors • Does not require literate population 	<ul style="list-style-type: none"> • High staff cost and burden • Relies on subject recall • Requires multiple recalls over several months to capture habitual intake

	Advantages	Disadvantages
Food Frequency Questionnaire	<ul style="list-style-type: none"> • Less subject burden • Less staff burden • Does not alter eating behaviors • Captures habitual intake 	<ul style="list-style-type: none"> • Relies on subject recall • Not as quantifiably precise • Requires literate population • Does not provide meal pattern information • Cannot be used over short time periods

Choosing an Appropriate Method

The most important question to consider before implementing a dietary assessment tool is whether or not you are interested in habitual intake. That is, do you want to capture your subject's routine eating patterns, or are you interested in capturing exactly what they consumed immediately prior to a study visit? If you are interested in the latter, a diet record or 24h recall is more appropriate. A diet record completed over several days is more likely to generate accurate intake information than a single 24-hour recall. To choose between the two, consider how many days of intake are necessary, the literacy of your population and other population characteristics (e.g. will recall be an issue in an elderly population?)

If you are interested in capturing habitual intake, the next step is to consider the type of study you are conducting. Retrospective studies have no other option but to use a FFQ, while prospective studies can use any of these three methods. The study timeline, budget and population characteristics will help determine which of the three methods is more appropriate.

Reference

Thompson, FE and Byers, T. Dietary assessment resource manual. *J Nutr.* 1994;124(11 Suppl): 2245S-2317S