



ANALYSE THIS!

Understanding dietary assessment

An accurate record of a client's eating habits is like gold to the fitness professional. Nutritionist *Leanne Cooper* takes a look at the benefits and the limitations of commonly used dietary assessment tools.

The accurate recording and assessment of a client's dietary intake is highly valuable to fitness professionals. Even if you are not the person conducting the analysis, being able to interpret the findings is useful. So, how well do you understand the information in a dietary analysis, and are you aware of the factors that influence its accuracy?

Why use dietary assessments?

Dietary assessments are used for various purposes, from conducting large-scale national nutrition surveys (many of which employ Food Frequency Questionnaires) through to assessing the specific diet of an athlete (often via a diet diary). The information that can be gained from a dietary assessment is vast and the benefits for both client and trainer may include:

- ▶ Determining actual foods contributing to an unhealthy eating pattern
- ▶ Determining potential nutrient issues in a diet, such as deficiencies and excesses
- ▶ Acting as a record of personal behaviour around eating
- ▶ Provision of written evidence of a person's dietary habit, useful as a baseline
- ▶ Visual information for clients that can be useful tools for change, especially for clients who are visual learners.

The ideal dietary assessment

In an ideal world, a dietary analysis would be quick to complete, inexpensive to administer, easy to interpret, provide accurate information of food habits and reflect a person's total nutrient and compound intake. In reality, dietary self-analysis tools are fraught with issues including respondent bias (where the person reports what they believe looks better or what they believe the practitioner wants them to report), errors in interpretations, for example of what constitutes a 'bowl', collation errors where data is entered incorrectly, and so on. To address some of the limitations, food cards that hold images of portions of food are used, alongside a list of standard size portions. However, the increasing array of food and beverages on the market poses a problem in terms of classification, updating of food/nutrient databases and increasing numbers of contaminants and additives.

Be informed about the limitations of the dietary assessment tool you use; it can influence the direction of goals and action plans. In essence keep the information in perspective and remember that your access to your client means that you have an excellent source of information right in front of you!

Common dietary assessment tools

There are over 10 types of dietary assessment tool, the most common ones are listed in Table 1 below. Exactly which type of assessment tool is used depends on the size of the survey, the information being sought and budget and logistical factors.

TABLE 1. TYPES OF DIETARY ASSESSMENT AND DEFINITIONS

Food/diet diary	A list (description) of foods eaten and drinks consumed. Usually includes an estimate of portion size in household measures (e.g. slice of bread, cup of tea).
Weighed food diary	A list (description) of foods eaten and weight of each food before (and remains after) consumption. Written at the time of consumption.
24-hour recall	A list (description from memory) of foods consumed over the previous 24 hours. Usually includes an estimate of portion size in household measure (e.g. slice of bread). Followed by questioning about food details, e.g. type of spread on bread, type of milk in tea.
Food Frequency Questionnaire	A list of foods (marked from memory) to give an indication of the typical frequency of consumption and amount consumed over a recent period of time (e.g. last year).

Source: Taken in part from Penn et al., 2010. *Assessment of dietary intake: NuGO symposium report*, p207



WEIGHED FOOD RECORDS AND FOOD DIARIES

This involves recording descriptions of all foods eaten. Every item is weighed prior to consumption, plus any food that is uneaten is deducted from this weight to give an accurate figure of actual consumption. As you can imagine, given the time consuming process and degree of figures required, the temptation to take short cuts is ever present, so to reduce errors the information is best recorded at the time the food is eaten. Naturally, such assessments can be inconvenient and, when carried out on a large scale, costly. The upside is they don't rely on memory and the detail that can be gathered is very useful.

Table 2 lists the benefits and limitations of this tool, as you can see there are numerous errors that can creep in both from the client's side and from the recorder's side.

TABLE 2. BENEFITS AND LIMITATIONS OF WEIGHED DIET ASSESSMENTS

Limitations	Benefits
<ul style="list-style-type: none"> • Under-reporting of intake (increases with age, (Australasian Child & Adolescent Obesity Research Network). • Misperceptions of portions • Can be time consuming and interrupt daily life • Quality of results is dependent on the participant's input and accuracy • Tend to be expensive and time consuming to administer and interpret • Increased errors in data entry • Can be intrusive 	<ul style="list-style-type: none"> • High level of detail can be gathered • Doesn't rely on a person's memory • Ideal for individuals

NON-WEIGHED RECORDING METHODS: FFQ AND 24-HOUR RECALL
Food Frequency Questionnaires (FFQ) are one of the most common forms of assessment, being inexpensive and very easy to administer. FFQs are lists of foods on a sheet that are simply marked off from memory, yielding an impression of the usual frequency of intake of that food or drink. For example, you may be asked to recall everything you ate and drank over the previous week from a long list of foods provided to you on a document.

CHECK OUT SAMPLE FFQ

A good example of an FFQ is The Cancer Council Victoria's Dietary Questionnaire for Epidemiological Studies (DQES). View a sample at www.cancervic.org.au/about-our-research/epidemiology/nutritional_assessment_services

As Table 3 illustrates, FFQs have several benefits, but again misrepresentations are common.

TABLE 3. BENEFITS AND LIMITATIONS OF FFQS

Limitations	Benefits
<ul style="list-style-type: none"> • Errors in recall • Misperceptions of portions • Don't assess the daily variation in eating habits • Require a level of reading suited to those aged 12 years and over • Not relevant for absolute energy intake or nutrient intake due to lack of accuracy 	<ul style="list-style-type: none"> • Relatively inexpensive to administer and collate • Can be used to review current and past eating habits • Useful for large studies • Can be administered by the person, on paper or online • Little interruption to daily life • Encompasses a better reporting period than a 24-hour recall

24-hour food recall is a very common dietary tool, consisting of a recalled list/description of all foods and beverages consumed over the previous 24 hours. This technique often consists of simple verbal recall with prompts from the person recording.

TABLE 4. BENEFITS AND LIMITATIONS OF A 24-HOUR FOOD RECALL

Limitations	Benefits
<ul style="list-style-type: none"> • Errors in recall • Misperceptions of portions • Doesn't assess the daily variation in eating habits • Not relevant for absolute energy intake or nutrient intake due to lack of accuracy • Only takes in one day of eating 	<ul style="list-style-type: none"> • Quite inexpensive to administer and collate • Useful for large studies • Can be administered by the person, on paper or online • Little interruption to daily life

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Dietary assessment software

While some of us may still labour with manual analysis of a diet, there is really no point given the quality and reasonably affordable software now available, which is based largely on Australian food data. Food Standards Australia New Zealand (FSANZ) provides extensive nutrient data on food through its freely available NUTTAB Database.

The current NUTTAB 2010 contains nutrient data for 2,668 foods available in Australia and includes up to 245 nutrients per food – so it is very comprehensive. The latest Food Composition Tables (2010), produced by FSANZ contain data on:

- ▶ Single foods – raw and cooked
- ▶ Commercial products
- ▶ Recipe ingredients
- ▶ Recipe foods – commercial and home prepared.

ACCESSING THE FSANZ DATABASE

Visit www.foodstandards.gov.au/consumerinformation/nuttab2010/ where you can either use the Online Searchable Database or download electronic database files which can be loaded into Microsoft Excel™ and manipulated to accommodate client data.

Dietary analysis software

Food Composition Tables form the basis of most dietary software applications, though if you are computer savvy you may be able to design your own application. The software enables you

to analyse a diet, create or analyse recipes, and print reports or recipes for clients to assist in dietary changes and monitoring.

Standard software will allow you to:

- ▶ Detail macronutrients, micronutrients, and nutrient ratios
- ▶ Provide nutrient analyses to compare against the Nutrient Reference Values (NRVs) including Recommended Daily Intakes (RDIs)
- ▶ Compare energy intake to estimated energy expenditure
- ▶ Create nutrient analysis reports relevant to the client and their nutrient goals
- ▶ Identify foods that contribute to a nutrient level in the diet
- ▶ Create recipes and menus with calorie and nutrient information
- ▶ Analyse recipes for nutrient and energy levels.


Many software programs also now provide images or flash cards of foods and servings to improve the quality of data collection and accuracy. Some commonly used software for Australia and NZ that uses the local Food Composition data include:

- ▶ **Food Works** - www.xyris.com.au
- ▶ **Serve** - www.serve.com.au/
- ▶ **Calorie King** - www.calorieking.com.au/software/
- ▶ **Perfect Diet Tracker** - www.perfect-diet-tracker.com/information.html (American produced)

AN APP A DAY...

Of course there are now mobile phone apps to help with dietary analysis; for one of many examples visit <http://itunes.apple.com/au/app/pic-healthy-photo-food-diary/id427537373?mt=8>

So, next time you refer to a dietary analysis, remember to consider the limitations and how they may affect the reliability of the results.

In a future article we'll take a look at the acronyms and figures that go into diet analysis to get you calculating relevant nutrient and energy requirements with the best of them! 



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Leanne holds tertiary qualifications in nutrition, psychology and education, and consults to a number of national teams and elite athletes. The founder of Cadence Health and Nutrition Courses, Leanne has grown the company into a popular stop for personal trainers to access relevant, informative, accredited distance education courses. To enrol into the 5 CEC-accredited Dietary Assessment Methods course, visit www.cadencehealth.com.au