

Comparison Chart of Nutrition Instruments

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Instrument's name	Weighted Food Records	Estimated Food Records	24-h Dietary Recall	Multiple Pass Recall	Food Frequency Questionnaire (FFQ)	Brief (short) Dietary Assessments (Screeners)	Dietary History
Main Topic	Individual food intake	Individual food intake	Individual food intake	Individual food intake	Individual food intake	Individual intake of specific nutrient or food group	Individual food intake
Objectives	To provide a detailed description of food and drinks -including corresponding weight- consumed by participant for a defined period of time.	To provide a detailed description of food and drinks -including an estimation of quantity- consumed by participant over a defined period of time.	To evaluate types of food and drinks consumed by participant in the previous day, methods of preparation, amounts eaten and approximate time of consumption.	To evaluate types of food and drinks consumed by participant in the previous day, methods of preparation, amounts eaten and approximate time of consumption.	To establish frequency of food consumption to determine usual food intake of participant.	To estimate intake of a single nutrient or food group by participant.	To ascertain a participant's "usual" food intake.
Quantitative/Semi-quantitative	Quantitative	Quantitative	Quantitative	Quantitative	Semi-Quantitative	Semi-Quantitative	Semi-Quantitative
Time Recall	At time of consumption (during several days not necessarily sequential)	At time of consumption (during several days not necessarily sequential)	Over the previous day	Over the previous day (can be repeated during several days)	Several months or years	From 1 day to years (variable depending on the type of assessment)	Not applicable
Strengths/Weaknesses	<p>Strengths</p> <ul style="list-style-type: none"> Widely used method Precision of portion sizes <p>Weaknesses</p> <ul style="list-style-type: none"> High respondent burden High investigator burden Mis-reporting Expensive 	<p>Strengths</p> <ul style="list-style-type: none"> Widely used method Moderate burden (lower than weighed food records) <p>Weaknesses</p> <ul style="list-style-type: none"> Estimation of portion sizes High investigator burden Mis-reporting Expensive 	<p>Strengths</p> <ul style="list-style-type: none"> Intake quantified Relative low respondent burden Suitable for large scale surveys Can be administered by telephone Does not affect eating behaviour <p>Weaknesses</p> <ul style="list-style-type: none"> Estimation of portion sizes Single observation provides poor measure of individual intake Bias in recording "good/bad" foods Memory dependent High investigator cost 	<p>Strengths</p> <ul style="list-style-type: none"> Improved precision compared with 24 hour recall Low respondent burden Suitable for large scale surveys Can be administered by telephone <p>Weaknesses</p> <ul style="list-style-type: none"> Estimation of portion sizes Bias in recording "good/bad" foods Memory dependent 	<p>Strengths</p> <ul style="list-style-type: none"> Low respondent burden Suitable for large scale surveys Can be self completed Can be posted Usual individual intake asked Information on total diet obtained Low investigator cost Does not affect eating behaviour <p>Weaknesses</p> <ul style="list-style-type: none"> Estimation of portion sizes (though use of food photographs may improve precision) Possible over-reporting of "healthy" foods (e.g. fruit and vegetables) Requires to be validated in relation to reference method Not quantifiably precise Difficult cognitive task for respondent 	<p>Strengths</p> <ul style="list-style-type: none"> Brevity Low respondent burden Low investigator cost Useful in situations where health promotion and health education are the goals Useful for population surveillance Usual individual intake often asked Does not affect eating behaviour foods <p>Weaknesses</p> <ul style="list-style-type: none"> Do not capture information about the entire diet Not quantifiably precise Intake often misreported and underestimated Difficult cognitive task for respondent 	<p>Strengths</p> <ul style="list-style-type: none"> Usual individual intake asked Information on total diet obtained Information often available on foods consumed by meal Does not affect eating behaviour <p>Weaknesses</p> <ul style="list-style-type: none"> Not quantifiably precise Difficult cognitive task for respondent Intake often misreported Can have low investigator cost Can have high investigator burden
Number of Items	Non-finite list of food items consumed with their corresponding weight	Non-finite list of food items consumed with an estimation of quantity	Non-finite list of food items consumed with (in general) information on time of consumption, quantity eaten and other details as cooking preparation	Non-finite list of food and information collected in 4 steps (refers to "multiple pass"): <ol style="list-style-type: none"> Quick list of foods consumed Information about the meal/snacks consumed (including time and place) Prompt for foods that may have been forgotten Review of the record and further details of foods consumed and portion sizes 	Up to 200 items	Variable (e.g., 15 to 30 food items for most of the intake of a particular nutrient)	Original Burke diet history includes: <ol style="list-style-type: none"> An interview to determine the usual meal pattern (most frequently from a 24 h recall) A food frequency questionnaire A 3-day dietary record
Administration Mode	Self-administered	Self-administered	Interviewer-administered Telephone-administered Computer-administered (even possible to be completed online, cf ASA24)	Interviewer-administered Telephone-administered Computer-administered	Self-administered Interviewer-administered Telephone-administered	Self-administered Interviewer-administered Telephone-administered Computer-administered	Interviewer-administered Telephone-administered Self-administered
References	<p>Livingstone M.B., Prentice A.M., Strain J.J., Coward W.A., Black A.E., Barker M.E., McKenna P.G. and Whitehead R.G. (1990) Accuracy of weighed dietary records in studies of diet and health. <i>BMJ</i>;300:708-712</p> <p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://riskfactor.cancer.gov/diet/adi/thomson_subar_dietary_assessment_methodology.pdf)</p> <p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://www.statistics.gov.uk/ssd/surveys/national_diet_nutrition_survey_children.asp)</p>	<p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://riskfactor.cancer.gov/diet/adi/thomson_subar_dietary_assessment_methodology.pdf)</p>	<p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://riskfactor.cancer.gov/diet/adi/thomson_subar_dietary_assessment_methodology.pdf)</p>	<p>Guenther P.M., Cleveland L.E., Ingwersen L.A. and Berline M. (1998) Questionnaire design and data collection procedures. In Design and Operation: The Continuing Survey of Food Intakes by Individuals and the Diet and Health Knowledge Survey 1994- 1996, chapter 4, pp. 42-63. U.S. Department of Agriculture, Agriculture Research Service Nationwide Food Surveys Report no. 96-1. Beltsville, MD: United States Department of Agriculture.</p> <p>USDA Automated Multiple-Pass Method (http://www.ars.usda.gov/Services/docs.htm?docid=7710)</p>	<p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://riskfactor.cancer.gov/diet/adi/thomson_subar_dietary_assessment_methodology.pdf)</p>	<p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://riskfactor.cancer.gov/diet/adi/thomson_subar_dietary_assessment_methodology.pdf)</p>	<p>Burke B.S. (1947). The dietary history as a tool in research. <i>J. Am. Diet. Assoc.</i> 23, 1041-1046.</p> <p>Thompson F.E. and Subar A.F. (2001) Dietary assessment methodology. In: A.M. Coulston, C.L. Rock and E.R. Mosen, Editors, Nutrition in the Prevention and Treatment of Disease, 2nd ed, Academic Press, San Diego, CA. (http://riskfactor.cancer.gov/diet/adi/thomson_subar_dietary_assessment_methodology.pdf)</p>
References of studies using this approach	<p>National Diet and Nutrition Survey: young people aged 4 to 18 years (http://www.statistics.gov.uk/ssd/surveys/national_diet_nutrition_survey_children.asp)</p>	<p>European Prospective Investigation into Cancer and Nutrition (EPIC) (http://epic.iarc.fr/research/meth.php)</p>	<p>European Prospective Investigation into Cancer and Nutrition (EPIC) (http://www.p3gobservatory.org/catalogue.htm?questionnaireid=121)</p>	<p>National Health and Nutrition Examination Survey (NHANES) 1999-2000 (http://www.cdc.gov/nchs/nhanes/questexam.htm see link "dietary recall" in section "Examination and Laboratory")</p>	<p>European Prospective Investigation into Cancer and Nutrition (EPIC) (http://www.p3gobservatory.org/catalogue.htm?questionnaireid=121)</p> <p>National Institute of Health and American Association of Retired Persons (NIH-AARP) (http://www.p3gobservatory.org/catalogue.htm?questionnaireid=187)</p>	<p>National Cancer Institut (NCI) (http://riskfactor.cancer.gov/diet/screeners/)</p> <p>United States Department of Agriculture (USDA) (http://fnic.nal.usda.gov/nal_display/index.php?info_center=4&tax_level=2&tax_subject=256&topic_id=1325 see link "fat screener" and "Fruit, Vegetable and Fiber Screener")</p> <p>Fred Hutchinson Cancer Research Center (Soy, Fat, Caffeine Questionnaires) (http://www.thrcr.org/science/shared_resources/nutrition/other_questionnaires/index.html#soy)</p>	<p>European Prospective Investigation into Cancer and Nutrition (EPIC) (http://epic.iarc.fr/research/meth.php)</p> <p>Coronary Artery Risk Development in Young Adults (CARDIA) prospective study (http://www.cardia.dopm.uab.edu/pdf/dcfy20/Form%206%20-%20Quantitated%20Food%20History%20(annotated).pdf see link "diet history interview")</p>
Additional Comments		Estimation of food consumed can be carried out using household measures (eg. Cups, spoons, food photographs or food models). These estimates could be converted into weights and then be used to calculate food and nutrient intake.	The 24-hour recall is the most widely used method for obtaining quantitative recall data.	Automated Self-administered 24-hour Dietary Recall (ASA24) (http://riskfactor.cancer.gov/tools/instruments/asa24/)	It was originally developed by the United States Department of Agriculture (Guenther et al. 1998) and since improved (Moshfegh et al. 1999) in order to limit the extent of underreporting that occurs with self-reported food intake.	Brief instruments can be simplified/targeted FFQs or questionnaires that focus on specific eating behaviors other than the frequency of consuming specific foods.	The term "diet history" is used in many ways. In the most general sense, a dietary history is any dietary assessment that asks the respondent to report about past diet. Originally, as coined by Burke, the term "dietary history" referred to the collection of information not only about the frequency of intake of various foods but also about the typical makeup of meals. Many now imprecisely use the term "dietary history" to refer to the food frequency method of dietary assessment (Thompson F.E. and Subar A.F., 2001).