

Table 2.3. Validation of dietary assessment methods in breastfeeding women

Reference	Study Population	Test Method (TM)	Reference Measurement (RM)	Design Features	Correlation Between TM and RM	Mean Intake Difference Between TM and RM
<b>DLW METHOD FOR TOTAL ENERGY EXPENDITURE (TEE) MEASUREMENT</b>						
Goldberg et al., 1991 (34)	10 exclusively breastfeeding women  Followed longitudinally at 4, 8, and 12 wk. pp  Middle to upper SES, Caucasian, healthy, nonsmoking  Cambridge, UK	DLW method	7d weighed FR (4d weighed FR, off 7d, then 3d weighed FR)	The purpose of this study was to examine energy balance in well-nourished lactating women. TEE, BMR, BM output, and energy intake were studied at 36 wks. gestation, and at 4, 8, and 12 wks. pp while nursing, and in the non-pregnant, non-nursing state. DLW dose followed by 21d urine or saliva collection from nursing mother and infant. Breast milk output measured by dose-to-the mother technique (DLW dose administered to lactating women).	Not specified	<b>TEE vs. Weighed FR</b> Differences between sum of TEE, milk-energy transfer, and energy deposited as fat and energy intake from weighed FR: 4 wks. pp = $9.6 \pm 16.6\%$ overestimation 8 wks. pp = $-1.3 \pm 19.3\%$ underestimation 12 wks. pp = $4.9 \pm 13.7\%$ overestimation  Data examined for individuals found largest degree of under-reporting of energy intake only in the overweight subject (BMI 29.9).
Forsom et al., 1992 (15)	23 exclusively breastfeeding women  Followed longitudinally @ 2 and 6 mo. pp  Stockholm	DLW method @ 2 mo. pp	4d Weighed FR @ 2 mo. pp	DLW spot urine specimens collected 6 and 13 d after dosing. At 2 mo. pp BM output measured by 24h test weighing of infant before and after each feeding. FR kept 3 weekdays and 1 weekend day after dosing.	Not specified	<b>TEE + BM Energy Output vs. Weighed FR</b> 33% overestimation (3.1 MJ/d)  2 mo. pp TEE + BM energy output = $12.7 \pm 2.1$ MJ/d vs. FR energy intake $9.5 \pm 2.5$ MJ/d

Table 2.3. Validation of dietary assessment methods in breastfeeding women, continued

Reference	Study Population	Test Method (TM)	Reference Measurement (RM)	Design Features	Correlation Between TM and RM	Mean Intake Difference Between TM and RM
<b>FOOD FREQUENCY QUESTIONNAIRE (FFQ)</b>						
Stuff et al., 1983 (35)	40 exclusively breastfeeding women  3 wk to 6 mo. pp; mean 2.7 mo. pp  Caucasian, healthy by history, nonsmoking, no medications; infants growing within normal limits  Texas	105-item FFQ  Interviewer-administered with replica food models, measuring cups, and spoons.  Current intake	7d Estimated FR	Nutritionist administered FFQ in home interview and then provided instructions for keeping 7d estimated FR. FR returned by mail; follow-up telephone calls clarified questions on FR. Random days selected for 1d FR and 3d FR analysis.	Interclass correlations <u>FFQ vs. 7d FR</u> kcal = 0.09 Protein, fat, CHO calcium , and iron ranged from 0.00 to 0.24 (all not significant)  <u>1d FR vs. 7d FR</u> kcal = 0.45 p<0.005 Protein, fat, CHO calcium , and iron ranged from 0.42 to 0.66 (all p<0.0050)  <u>3dFR vs. 7d FR</u> kcal = 0.79 p<0.005 Protein, fat, CHO calcium, and iron ranged from 0.42 to 0.66 (all p<0.0050)	<b>FFQ vs. 7d FR</b> FFQ 9% higher (177 kcal difference)  FFQ = 2206 ± 478 kcal 7d FR = 2029 ± 357 kcal 1d FR = 2057 ± 609 kcal 3d FR = 2059 ± 444 kcal  FFQ estimates higher than FRs for all other nutrients.  Intra-individual variation greater than inter-individual variation.

Table 2.3. Validation of dietary assessment methods in breastfeeding women, continued

Reference	Study Population	Test Method (TM)	Reference Measurement (RM)	Design Features	Correlation Between TM and RM	Mean Intake Difference Between TM and RM
<b>FOOD FREQUENCY QUESTIONNAIRE (FFQ), continued</b>						
FNS, USDA, 1994 (25)	<u>Pregnant women</u> 150 <u>BF women</u> 150 <u>PP women</u> 150 <u>Children 1-4 yrs</u> 150  WIC participants distributed evenly between black, white, and Hispanic ethnic groups	Harvard Women FFQ (WFFQ)  NCI-Block HHHQ  Intake period not specified in Executive Summary	3 24HRs by telephone	Data collection from July 1993 through January 1994. In each category, half the sample received WFFQ followed by 3 non-consecutive telephone 24HRs and a second administration of the WFFQ. The other half of the sample received the HHHQ followed by 3 non-consecutive 24HR and a second administration of the HHHQ.	<b>FFQ vs. 24HR Breastfeeding women</b> WFFQ/HHHQ Kcal 0.23/0.25 Pro. 0.18/0.22 Vit A 0.23/0.26 Vit C 0.05/0.22 Iron 0.06/0.28 Calcium 0.17/0.31  <u>All Women</u> WFFQ/HHHQ Kcal 0.19/0.37 Pro. 0.24/0.35 Vit A 0.21/0.32 Vit C 0.13/0.30 Iron 0.20/0.26 Calcium 0.29/0.42	Not reported in Executive Summary  <b>Other results:</b> HHHQ more valid for white and black women than WFFQ  Neither FFQ valid in Hispanic women or in children