Relative validity of dietary self-report in an intervention trial for Type 2 diabetes mellitus

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All dietary assessment instruments produce inherent errors, which can be problematic for studies of diet and diabetes control. We have previously reported on the validity of self-reported intakes, captured by the diet history interview (DH), in adults at risk for Type 2 diabetes mellitus (T2DM) (1). The paper presented here reports on the relative validity of dietary self-report in adults diagnosed with T2DM who participated in a clinical intervention trial.

Methods: Fifty-six men and women, diagnosed with T2DM in the previous two years were recruited from the Illawarra Diabetes Service. Dietary data were collected by DH interviews and three-day food records (FR) every three months for one year. Self-reports from the DHs were then compared with the FR using paired t-tests, correlation coefficients and Bland-Altman analyses (2). Bias (DH-FR) was also examined longitudinally using a two way repeated measures analysis of covariance. The Goldberg cut-off limits were used to detect the presence of underreporting of energy (EI) at each data collection point (3).

Results: There were no significant differences between paired data from the DH and the FR at baseline (Table1). A linear relationship was shown for energy, protein, carbohydrate and fat, but not for the individual fatty acids, which showed large variability over a narrow range of intakes. There were no trends in bias with mean intake of any variable or over time. Underreporting of EI was greater with the DH than with the FR at baseline, but not during the trial.

Variable	DH[1]	FR[1]	Bias[1]	Correlation coefficient
Energy (kJ)	7640.95 ± 1879.93	7802.89 ± 1921.72	–244.02 ± 1959.51	0.47*
% Protein (% EI)	21.72 ± 3.58	21.08 ± 3.54	0.55 ± 3.86	0.42*
% Carbohydrate (%EI)	44.31 ± 7.69	43.68 ± 6.26	0.86 ± 6.51	0.57**
% Fat (% EI)	29.07 ± 7.37	29.73 ± 6.29	–0.88 ± 6.40	0.57**
% Monounsaturated fat (% fat)	42.34 ± 5.36	41.47 ± 5.24	0.93 ± 6.51	0.16
% Polyunsaturated fat (% fat)	18.59 ± 5.79	17.49 ± 4.72	0.75 ± 6.57	0.24
% Saturated fat (% fat)	39.07 ± 6.57	41.03 ± 6.98	–1.47 ± 8.63	0.17

[1]mean ± SD *significant at $P < 0.05$ **significant at $P < 0.01$

Our results show that self-reported dietary intakes measured with a DH were relatively valid in adults with T2DM participating in a clinical intervention trial.

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3. Goldberg GR, Black AE, Jebb SA, et al. Critical evaluation of energy intake data using fundamental principles of energy physiology: 1. Derivation of cut-off limits to identify under-recording. Eur J Clin Nutr 1991; 45: 569–581.