

## Supplementary Material

**Table S1**

**Table S1. Energy estimations for real and fake food items.**

Food item	Energy per 100g raw real food product (kJ) <sup>a</sup>	Energy per 100g cooked real food product (kJ)	Theoretical energy per 100g fake food (kJ)
Carrots	135	na <sup>b</sup>	149
Beans	103	102.2	75.4
Pasta	1498	667.5	454.5
Chicken	456	647.9	635.7

<sup>a</sup> Values derived from Swissfir database.<sup>(36)</sup>

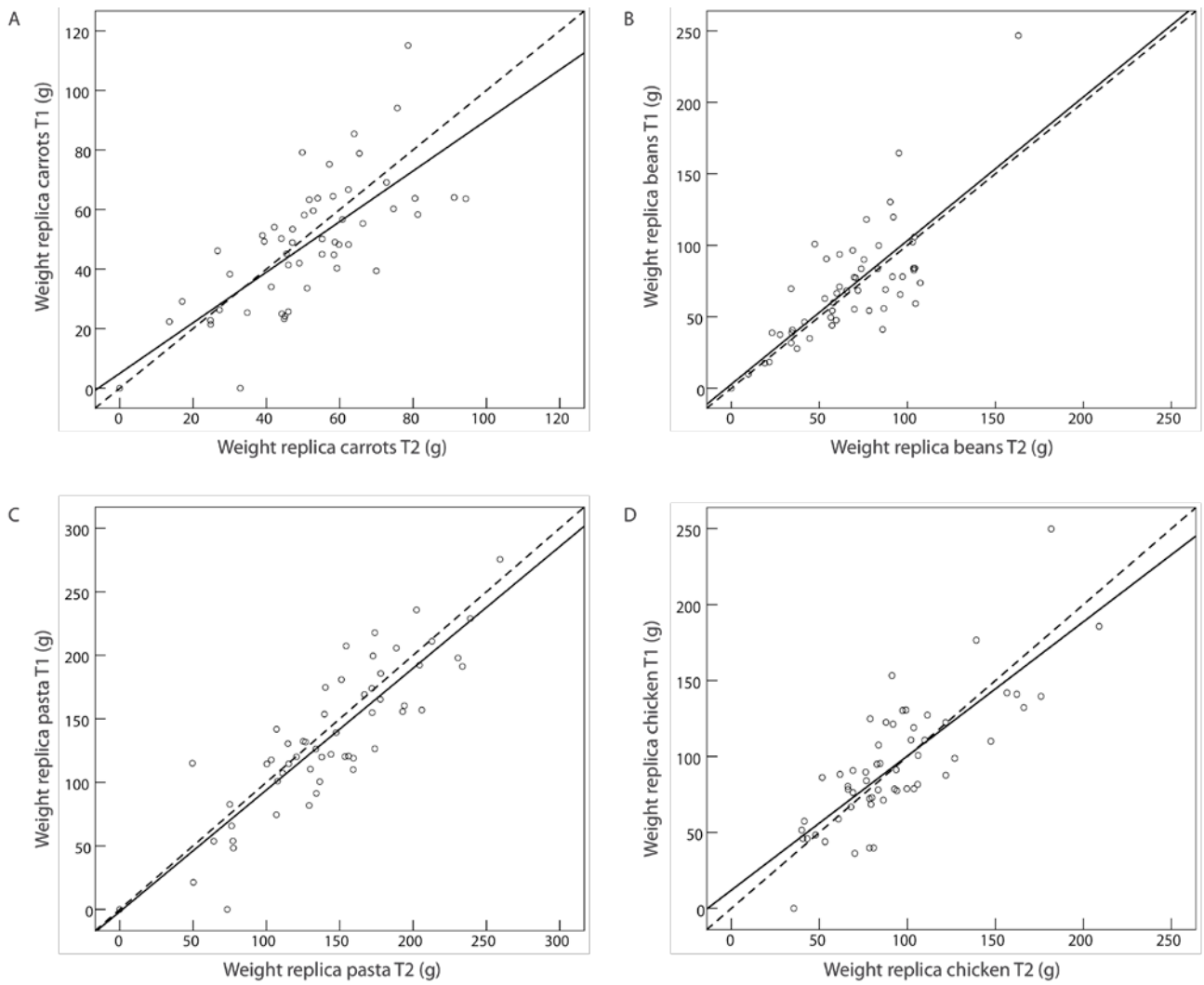
<sup>b</sup> No value was calculated as carrots were not used for the validity study.



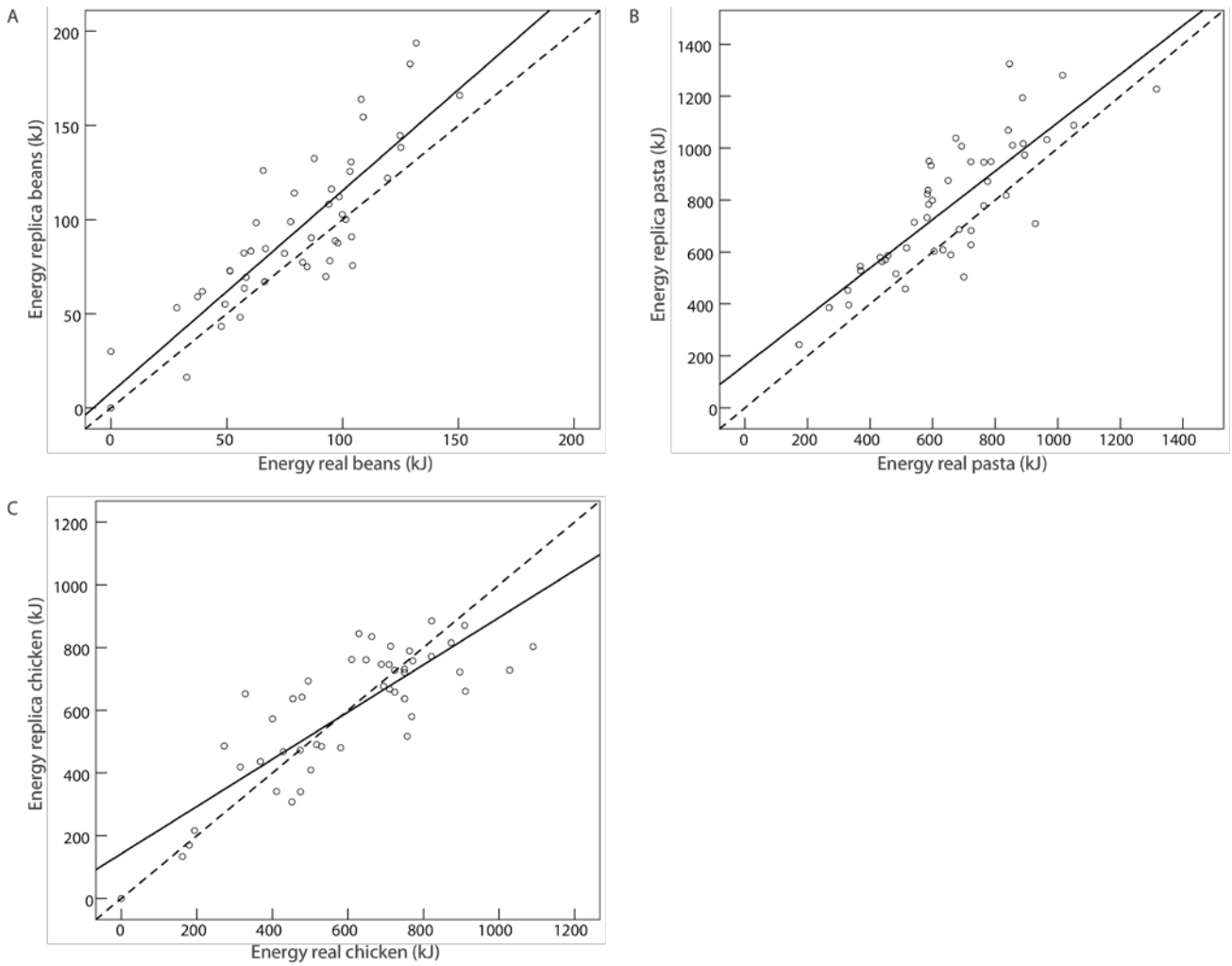
**Fig. S1.** Fake Food Buffet (FFB) as used in reproducibility study. All food items are replica cast from polyvinyl chloride (Döring GmbH, Munich, Germany). Left to right: cooked carrots, cooked green garden beans, pasta, fried and cut chicken breast.



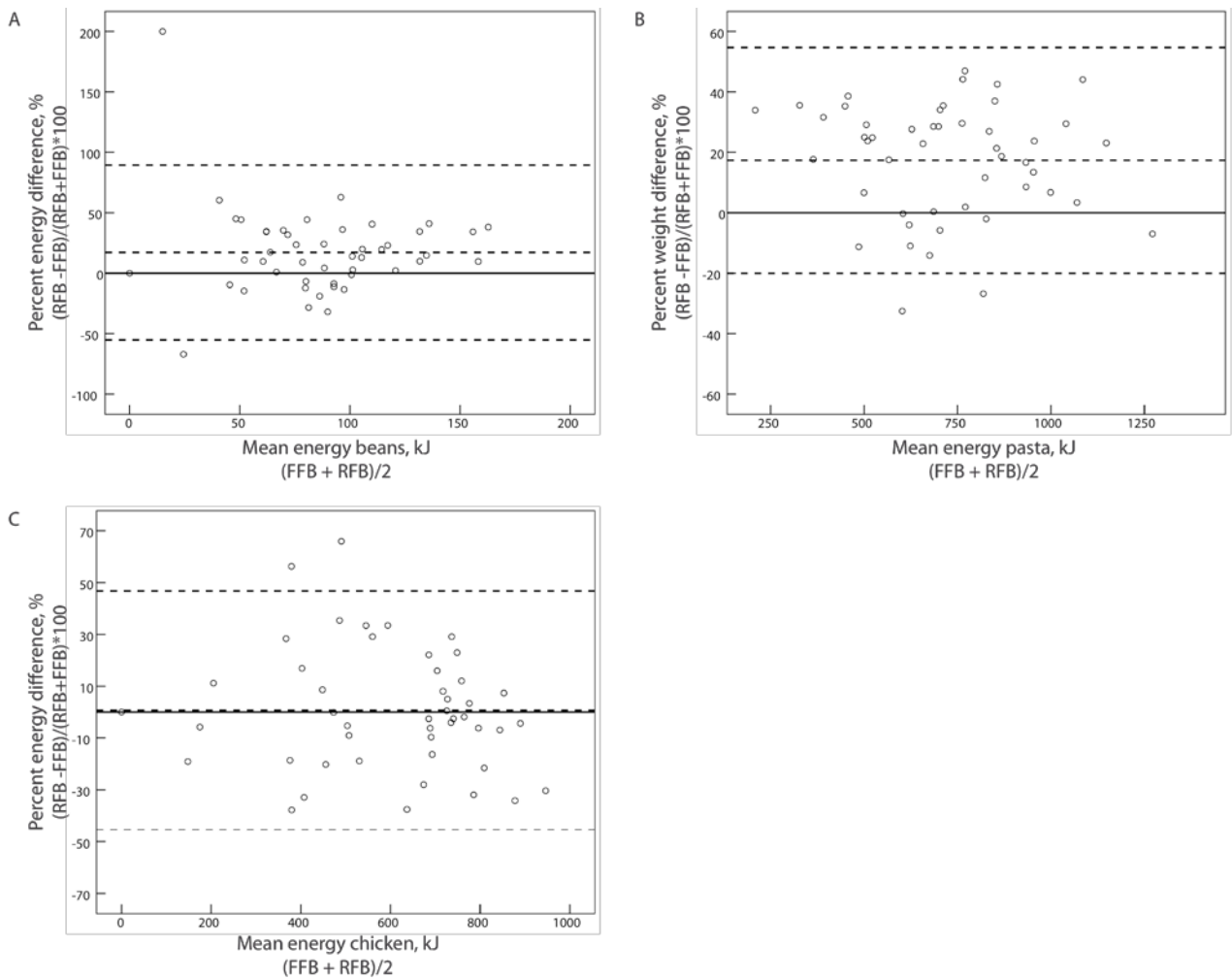
**Fig. S2.** FFB and corresponding RFB. Top to bottom: green garden beans, pasta, and chopped chicken breast. Left column: replica foods; right column: real foods. All replica foods are cast from polyvinyl chloride (Döring GmbH, München, Germany).



**Fig. S3.** Bivariate plot of weight replica food served (g) in test (T1) and retest (T2) study. A: Weight replica carrots,  $R^2 = 0.61$ . B: Weight replica beans,  $R^2 = 0.64$ . Correlation without visible outlier  $r = 0.78$ . C: Weight replica pasta,  $R^2 = 0.78$ . D: Weight replica chicken,  $R^2 = 0.64$ . — Linear Regression. - - - Ideal line: energy FFB = RFB.

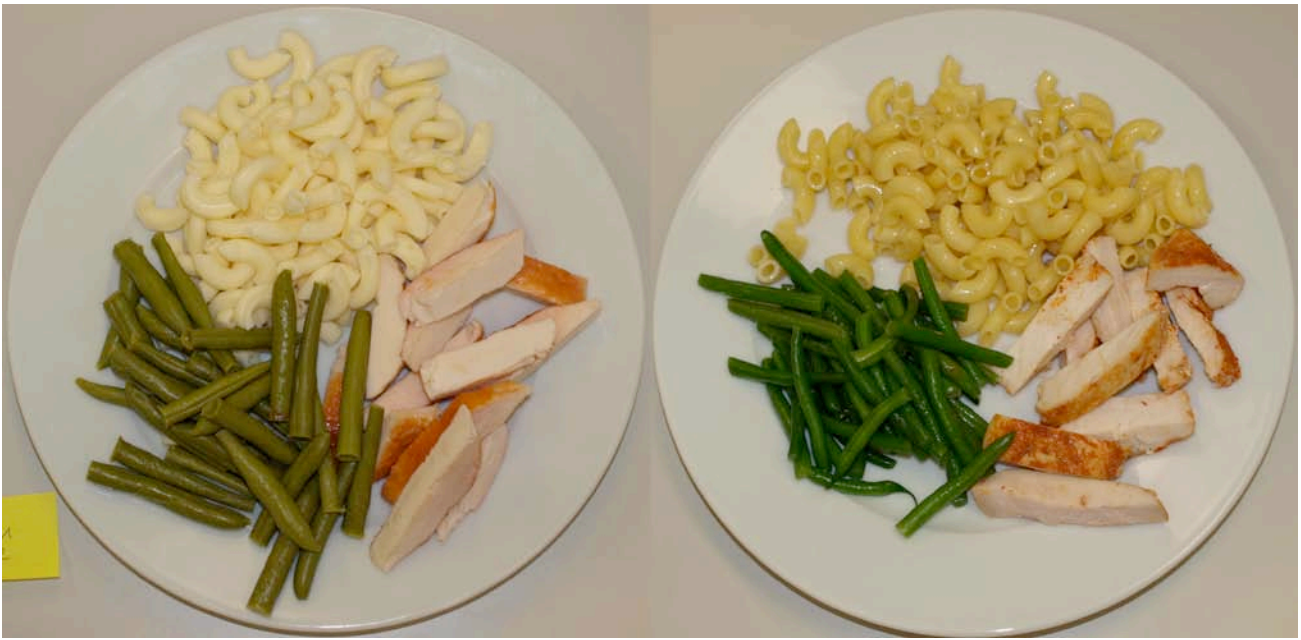


**Fig. S4.** Bivariate plots of energy (kJ) replica food served from the FFB and energy real food served from a corresponding RFB. A: Weight beans,  $R^2 = 0.75$ . B: Weight pasta,  $R^2 = 0.68$ . C: Weight chicken,  $R^2 = 0.70$ . — Linear Regression. - - - Ideal line: energy FFB = RFB.



**Fig. S5.** Agreement between energy served from FFB and RFB estimated by the Bland-Altman method.<sup>(39)</sup> A: Energy beans (kJ). Note, that the visible outlier stems from a person who served 30 g of real beans but no fake beans, which results in a high relative difference. B: Weight pasta (kJ). C: Weight chicken (kJ). Dotted lines indicate the mean relative difference in kJ served from FFB and RFB and the 95% boundaries of true significance (Mean  $\pm$  1.96\*SD).





**Fig. S6.** Example of a meal served from the FFB and RFB in validity study (subject 33). Left: meal served from FFB. Right: meal served from RFB two weeks later.