

Description of Additional supplementary files

Supplementary Data 1. Metabolite level changes from low-, to moderate-, to high-carbohydrate diets.

Supplementary Data 2. Metabolite level changes in relation to higher Carbohydrate-to-Fat ratio in the Popular Diets Study (external validation study): comparison with (FS)2.

Supplementary Data 3. Metabolite level changes over time in response to higher Carbohydrate-to-Fat ratio: early vs. entire test phase.

Supplementary Data 4. Potential biomarkers contributing to the discriminative power between dietary groups using VIP scores.

Supplementary Data 5. Metabolite level changes from low-, to moderate-, to high-carbohydrate diets: excluding participants who gained >2 kg weight during the test phase.

Supplementary Data 6. Metabolite level changes over time in response to higher Carbohydrate-to-Fat ratio excluding participants who gained >2 kg weight during the test phase: early vs. entire test phase.

Supplementary Data 7. Metabolite level changes associated with weight gain >2 kg during the test phase.

Supplementary Data 8. Metabolite level changes from low-, to moderate-, to high-carbohydrate diets: excluding participants who did not maintain weight loss based on distinct thresholds (± 2 kg, ± 1.5 kg, ± 2.5 kg, and ± 3 kg).

Supplementary Data 9. Results of mediation analyses testing the effects of diet-responsive metabolites on cardiometabolic risk biomarkers.

Supplementary Data 10. Metabolite level changes from low-, to moderate-, to high-carbohydrate diets, with the carbohydrate-to-fat ratio assessed as a continuous variable.