Supplemental files:

Table S1. Effects of dietary intervention on lipid classes and scores associated with Cardiovascular risk.

| Lipid class | Intervention Median (IQR)[a] (n=45) | Control Median (IQR)[a] (n=44) | Post period difference (n=43) | Pb Intervention vs control (n=46) | Pc Intervention vs control (n=28) |
|---|---|---|---|---|---|
| AC | −0.027 (−1.360, 0.965) | −0.026 (−1.172, 1.13) | −0.258 | 0.513 | 0.692 |
| CE | 3660 (−11500, 27500) | −7466 (−22360, 8767) | 6560 | 0.125 | 0.268 |
| Cer | −0.276 (−1.070, 0.459) | 0.286 (−0.313, 1.009)[d] | −0.659 | 0.001 | 0.001 |
| DAG | −0.57 (−8.03, 3.79) | −1.209 (−4.96, 4.878) | −2.06 | 0.282 | 0.949 |
| Gb3 | 0.210 (−1.250, 1.620) | 0.495 (−1.247, 1.981) | 0.443 | 0.714 | 0.505 |
| Glc/GalCer | 0.197 (−0.288, 0.724) | −0.461(−0.837,0.583) | 0.138 | 0.175 | 0.220 |
| Lac Cer | 0.324 (−0.763, 1.21) | −0.043(−0.649,0.689) | 0.040 | 0.310 | 0.890 |
| LPC | −23.8 (−86.8, 88.7) | 7.221(−114.668,174.258) | −45.1 | 0.255 | 0.652 |
| LPCO | −0.167 (−0.981, 0.928) | 0.502(−1.1,1.642) | −0.642 | 0.530 | 0.845 |
| LPCP | −0.047 (−0.223, 0.195) | 0.162(−0.214,0.444) | −0.119 | 0.024 | 0.087 |
| LPE | −0.76 (−3.19, 2.33) | −0.778(−3.439,2.806) | −0.374 | 0.505 | 0.895 |
| LPEP | 0.045 (−0.340, 0.279) | 0.059(−0.39,0.43) | −0.112 | 0.116 | 0.098 |
| LPI | 0.020 (−0.309, 0.325) | 0.058(−0.261,0.406) | 0.007 | 0.679 | 0.963 |
| PC | −49.4 (−151, 77.1) | 16.0(−68.2,135.6) | −6.69 | 0.037 | 0.037 |
| PCO | −5.68 (−13.0, 5.96)[d] | 3.40(−7.48,14.12) | −6.86 | 0.005 | 0.003 |
| PCP | −4.06 (−9.47, 4.11) | 4.62(−6.97,12.74) | −6.24 | 0.022 | 0.005 |
| PE | −1.99 (−7.58, 3.10) | 1.63(−3.84,4.90) | −0.997 | 0.104 | 0.133 |
| PEO | −0.006 (−0.312, 0.288) | −0.01(−0.54,0.466) | −0.183 | 0.661 | 0.320 |
| PEP | −0.028 (−0.459, 0.379) | −0.127(−0.46,0.539) | −0.119 | 0.789 | 0.340 |
| PG | −0.004 (−0.033, 0.016) | 0.011(−0.012,0.033) | −0.006 | 0.029 | 0.027 |
| PI | −0.06 (−2.72, 1.90) | 1.692(−1.798,4.657) | −0.697 | 0.155 | 0.169 |
| SM | −1 (−773, 549) | 98.614(−520.506,616.378) | 190. | 0.910 | 0.943 |
| TAG | −3.57 (−20.3, 8.37) | 5.769(−9.207,15.039) | −8.63 | 0.014 | 0.145 |
| Long TAG score | 0.30 (−1.00, 1.36) | −0.645(−1.867,0.488)[d] | 0.636 | 0.017 | 0.025 |
| PC score | 17.2 (−32.4, 54.5) | −3.073(−37.673,23.815) | 26.0 | 0.008 | 0.047 |
| CE score | 6150 (−7020, 15800) | −5245 (−12008,5810)[d] | 4310 | 0.009 | 0.077 |
| Short TAG score | −2.29 (−6.03, 2.43)[d] | 1.042(−1.841,6.228)[d] | −3.21 | 0.004 | 0.023 |

AC, acetylcarnitine; CE, Cholesteryl ester; Cer, Ceramide; DAG, Diacylglycerol; Gb3, glycosphingolipid globotriaosylceramide; Glc/GalCer, glucosyl/galactosyl ceramide; Lac Cer, Lactosylceramide; LPC, Lysophosphatidylcholine; LPC(O), Lysoalkylphosphatidylcholine; LPC(P), Lysoalkenylphosphatidylcholine; LPE, lysophosphatidylethanolamine; LPE(P), Lysoalkenylphosphatidylethanolamine; LPI, lysophosphatidylinositol; PC, Phosphatidylcholine; PC(O), Alkylphosphatidylcholine; PC(P), Alkenylphosphatidylcholine; PE, phosphatidylethanolamine; PE(O), Alkylphosphatidylethanolamine; PE(P), Alkenylphosphatidylethanolamine; PG, Phosphatidylglycerol; PI, Phosphatidylinositol; SM, Sphingomyelin; TAG, triacylglycerol; Long TAG score (TAG>54 carbons and >=5 double bonds); PC score (the sum of PC, LPC, PCP with >=5 of double bonds); CE score (CE>4 double bonds); short TAG score (TAG <50 carbons and <=4 double bonds). a) μmol/l, Interquartile Range (first quartile, third quartile) b) Mixed model comparing the diet periods c) Mixed model comparing the diet periods -sensitivity analysis d) significant within period by wilcoxon signed rank test p<0.05
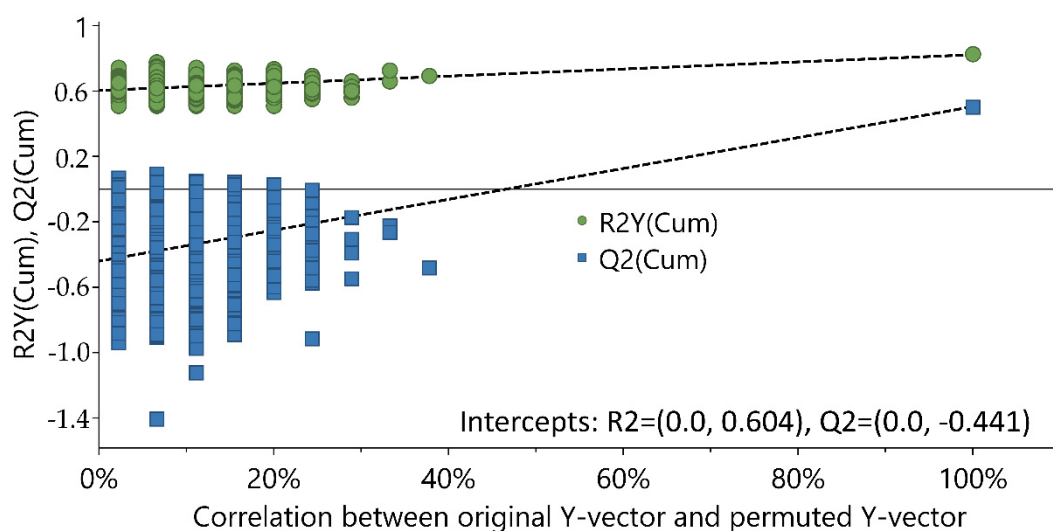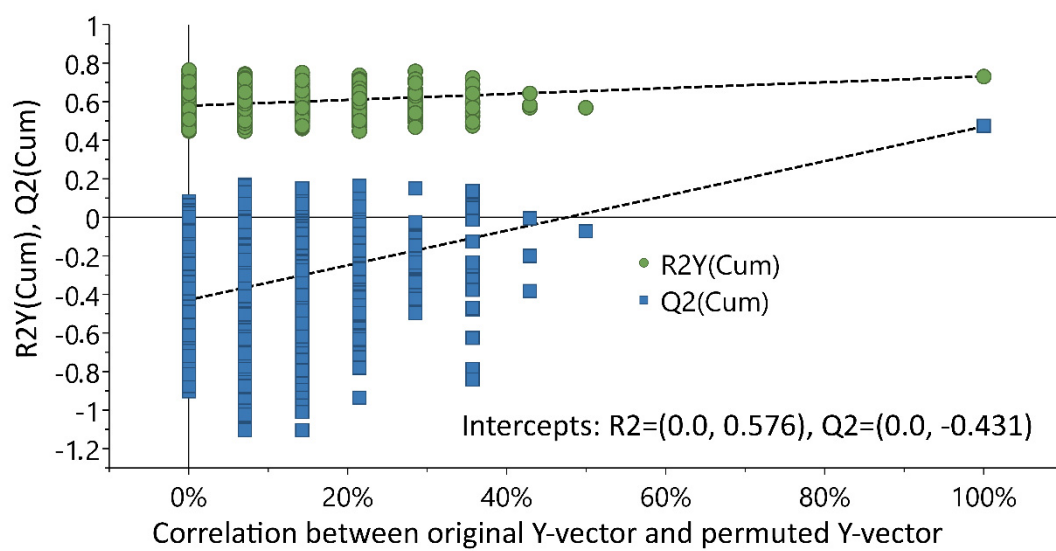


Figure S1. Permutation test OPLS-DA

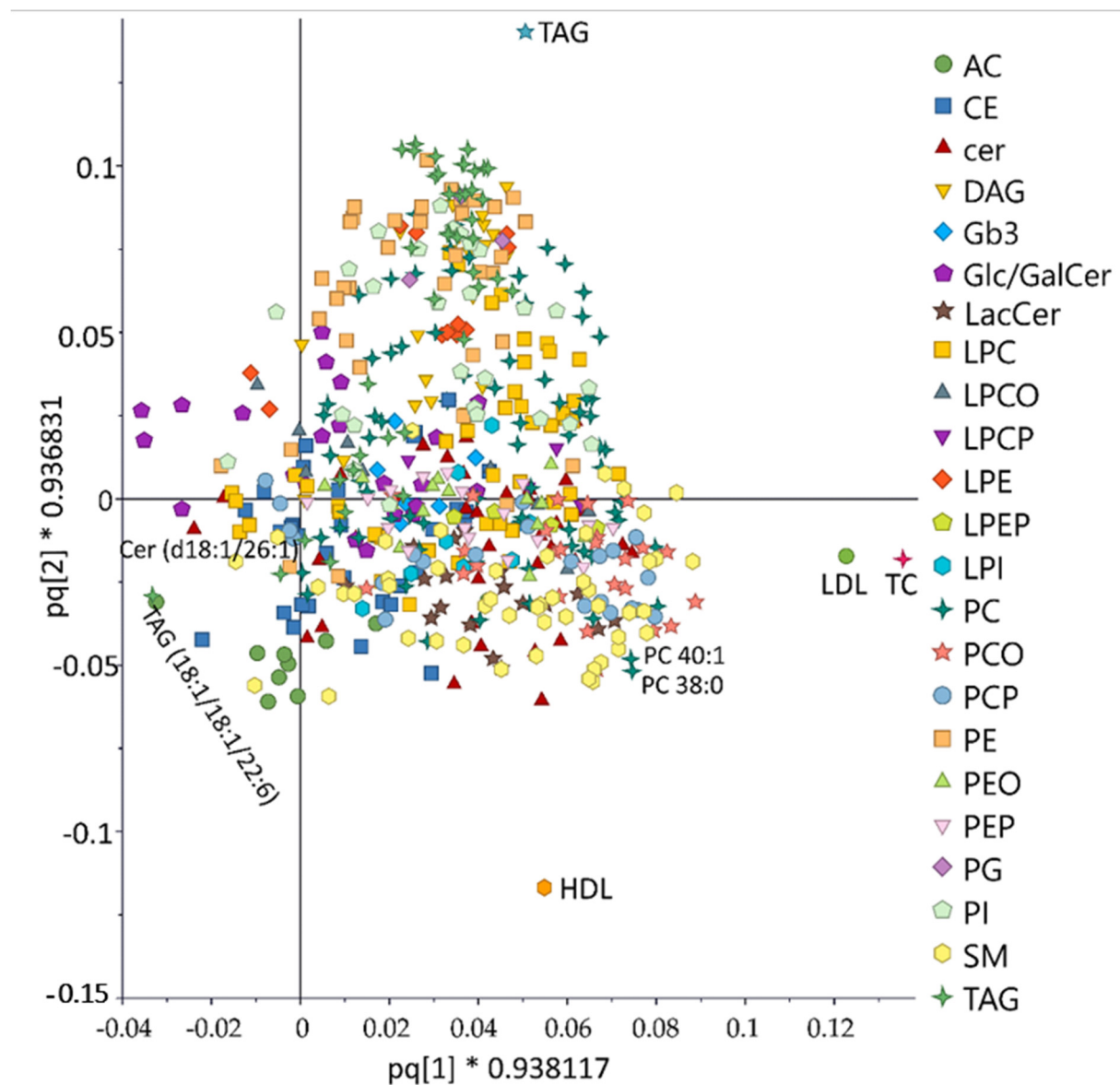Figure S2. Permutation test OPLS-DA-S

Figure S3. Loading scores for OPLS with clinical markers. TAG=triacylglycerides, TC= total cholesterol, HDL= high density lipoprotein, LDL=low density lipoprotein. Lipids that not cluster with their lipid class are named in the picture.
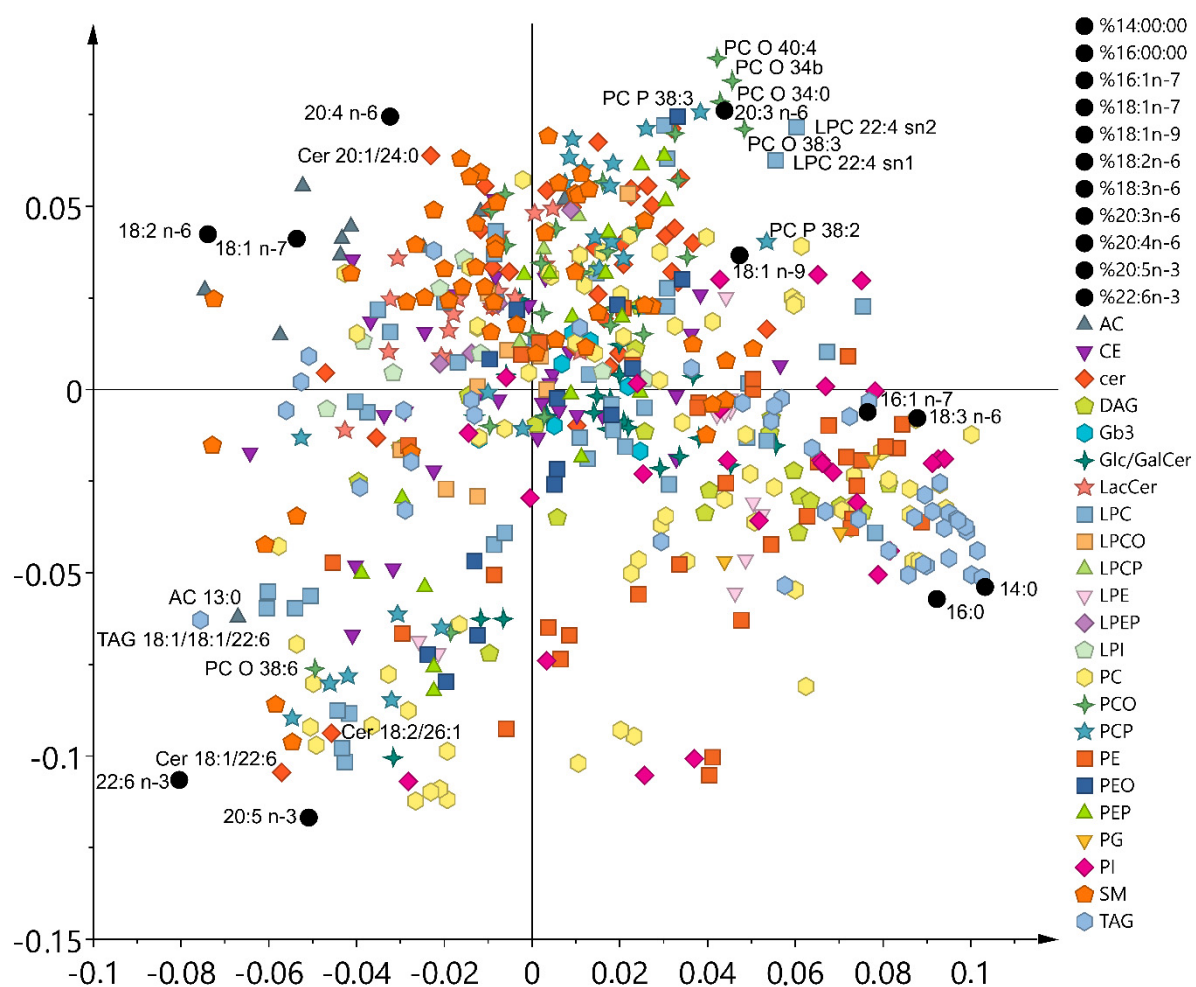
Figure S4. Loading scores for OPLS including fatty acids that were significant associated to the model. Fatty acids and lipids that not cluster with their lipid class are named in the picture.