Online Supplemental Material

Supplemental Table 1 Calculation of the CVD risk score

<table>
<thead>
<tr>
<th>CVD risk factors</th>
<th>Male 1 point</th>
<th>Female 1 point</th>
<th>Male 2 points</th>
<th>Female 2 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting total cholesterol, mmol/L</td>
<td>5.18 - 6.21</td>
<td>5.18 - 6.21</td>
<td>6.22 - 7.99</td>
<td>6.22 - 7.99</td>
</tr>
<tr>
<td>Fasting HDL cholesterol, mmol/L</td>
<td>0.91 - 1.16</td>
<td>1.17 - 1.29</td>
<td>≤0.90</td>
<td>≤1.16</td>
</tr>
<tr>
<td>Fasting glucose, mmol/L</td>
<td>6.00 - 6.99</td>
<td>6.00 - 6.99</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>25.0 - 29.9</td>
<td>25.0 - 29.9</td>
<td>30.0 - 39.9</td>
<td>30.0 - 39.9</td>
</tr>
<tr>
<td>Waist circumference, cm</td>
<td>≥94</td>
<td>≥80</td>
<td>≥102</td>
<td>≥88</td>
</tr>
<tr>
<td>Systolic blood pressure, mm Hg</td>
<td>130 - 139</td>
<td>130 - 139</td>
<td>140 - 159</td>
<td>140 - 159</td>
</tr>
<tr>
<td>Diastolic blood pressure, mm Hg</td>
<td>n/a</td>
<td>n/a</td>
<td>90 - 99</td>
<td>90 - 99</td>
</tr>
<tr>
<td>First degree relative prematurely diagnosed with MI or T2D, age of diagnosis</td>
<td>n/a</td>
<td>n/a</td>
<td>≤55 y in male relatives</td>
<td>≤55 y in male relatives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>≤65 y in female relatives</td>
<td>≤65 y in female relatives</td>
</tr>
</tbody>
</table>

Adapted with permission from Weech et al. (16).

1 Participants scored points from one or multiple risk factors. The CVD risk score was calculated from the sum of all points obtained.

Participants at higher risk of total cholesterol (≥8.0 mmol/L), glucose (≥7.0 mmol/L) and blood pressure ≥160/100 mmHg) were excluded and advised to visit their general practitioner. CVD, cardiovascular disease; MI, myocardial infarction; T2D, type 2 diabetes.

2 Only 1 point was available for fasting glucose or 2 points for diastolic blood pressure.

3 Participants scored on either BMI or waist circumference, not both, with the maximum score being retained.

4 First degree relatives included parents or siblings. Participants scored 2 points for family history of premature diagnosis.
Online Supplemental Material

Supplemental Table 2  Reported dietary composition at baseline and the change from baseline after consuming diets rich in SFA, MUFA and n-6 PUFA for 16 wk in adults at moderate risk of cardiovascular disease\textsuperscript{1}

<table>
<thead>
<tr>
<th></th>
<th>SFA diet</th>
<th>MUFA diet</th>
<th>n-6 PUFA diet</th>
<th>$\Delta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy, MJ/d</td>
<td>8.8 ± 0.3</td>
<td>8.8 ± 0.3</td>
<td>8.6 ± 0.3</td>
<td>-0.4 ± 0.2\textsuperscript{b}</td>
</tr>
<tr>
<td>Total fat, %TE</td>
<td>32.7 ± 0.8</td>
<td>33.4 ± 0.7</td>
<td>32.5 ± 0.7</td>
<td>1.8 ± 0.7\textsuperscript{b}</td>
</tr>
<tr>
<td>SFA, %TE</td>
<td>11.5 ± 0.5</td>
<td>12.2 ± 0.4</td>
<td>11.6 ± 0.4</td>
<td>-3.6 ± 0.4\textsuperscript{b} \textsuperscript{1}</td>
</tr>
<tr>
<td>MUFA, %TE</td>
<td>11.4 ± 0.3</td>
<td>11.8 ± 0.3</td>
<td>11.7 ± 0.3</td>
<td>0.7 ± 0.4\textsuperscript{c} \textsuperscript{1}</td>
</tr>
<tr>
<td>n-6 PUFA, %TE</td>
<td>5.4 ± 0.2</td>
<td>5.1 ± 0.2</td>
<td>5.0 ± 0.2</td>
<td>5.5 ± 0.4\textsuperscript{c} \textsuperscript{1}</td>
</tr>
<tr>
<td>n-3 PUFA, %TE</td>
<td>0.88 ± 0.07</td>
<td>0.86 ± 0.05</td>
<td>0.81 ± 0.04</td>
<td>0.04 ± 0.05\textsuperscript{b} \textsuperscript{1}</td>
</tr>
<tr>
<td>Total PUFA, %TE</td>
<td>6.3 ± 0.3</td>
<td>6.0 ± 0.2</td>
<td>5.8 ± 0.3</td>
<td>5.5 ± 0.4\textsuperscript{c} \textsuperscript{1}</td>
</tr>
<tr>
<td>Trans fat, %TE</td>
<td>0.91 ± 0.05</td>
<td>1.01 ± 0.05</td>
<td>0.96 ± 0.04</td>
<td>-0.37 ± 0.05\textsuperscript{b} \textsuperscript{1}</td>
</tr>
<tr>
<td>Protein, %TE</td>
<td>16.3 ± 0.4</td>
<td>16.0 ± 0.4</td>
<td>16.3 ± 0.5</td>
<td>-0.3 ± 0.3\textsuperscript{b}</td>
</tr>
<tr>
<td>Carbohydrate, %TE</td>
<td>50.1 ± 1.0</td>
<td>49.8 ± 0.8</td>
<td>50.8 ± 0.9</td>
<td>-1.7 ± 0.7\textsuperscript{b}</td>
</tr>
<tr>
<td>Alcohol, %TE</td>
<td>3.7 ± 0.6</td>
<td>3.6 ± 0.5</td>
<td>3.2 ± 0.6</td>
<td>-0.3 ± 0.5\textsuperscript{b}</td>
</tr>
<tr>
<td>Dietary fibre (NSP), g/d</td>
<td>17.2 ± 0.8</td>
<td>16.6 ± 0.6</td>
<td>16.7 ± 0.7</td>
<td>1.0 ± 0.5\textsuperscript{b}</td>
</tr>
<tr>
<td>Cholesterol, mg/d</td>
<td>277 ± 19</td>
<td>262 ± 13</td>
<td>258 ± 15</td>
<td>-47 ± 13\textsuperscript{b}</td>
</tr>
<tr>
<td>Sodium, g/d</td>
<td>2.9 ± 0.1</td>
<td>2.9 ± 0.1</td>
<td>2.8 ± 0.2</td>
<td>0.0 ± 0.1\textsuperscript{b}</td>
</tr>
<tr>
<td>Potassium, g/d</td>
<td>3.3 ± 0.1</td>
<td>3.3 ± 0.1</td>
<td>3.3 ± 0.1</td>
<td>-0.1 ± 0.1\textsuperscript{b}</td>
</tr>
</tbody>
</table>
Supplemental Table 2 (continued)

Adapted with permission from Weech et al. (16).

1 Values are means ± SEMs, n = 63-65 per diet group. Dietary composition estimated from 4-d weighed diet diaries at baseline (wk 0) and during intervention (mean of wk 8 and wk 16 to assess compliance). No significant between-group differences were identified at baseline (one-factor ANOVA or Kruskal-Wallis test for non-normally distributed data). Different superscript letters within a row (a,b,c) identify intervention groups significantly different from one another (P ≤ 0.05). NSP, non-starch polysaccharide; %TE, % of total energy; Δ, change from baseline.

2 Overall between-group diet effects for each Δ derived from general linear models with baseline values for the variable of interest, BMI, age, sex, and intervention diet as prognostic factors. Post hoc analyses used Tukey’s correction to adjust for multiple testing.
Online Supplemental Material

Supplemental Table 3 Proportion of plasma phospholipid fatty acids at baseline and the change from baseline after consuming diets rich in SFA, MUFA and n-6 PUFA for 16 wk in adults at moderate risk of cardiovascular disease

<table>
<thead>
<tr>
<th></th>
<th>SFA diet</th>
<th>MUFA diet</th>
<th>n-6 PUFA diet</th>
<th>$P^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>$\Delta$</td>
<td>Baseline</td>
<td>$\Delta$</td>
</tr>
<tr>
<td>% of area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total SFA</td>
<td>41.9 ± 0.2</td>
<td>0.53 ± 0.13$^a$</td>
<td>41.8 ± 0.2</td>
<td>-0.54 ± 0.16$^b$</td>
</tr>
<tr>
<td>Total MUFA</td>
<td>14.3 ± 0.3</td>
<td>-0.32 ± 0.22$^a$</td>
<td>14.7 ± 0.4</td>
<td>1.19 ± 0.26$^b$</td>
</tr>
<tr>
<td>Total n-6 PUFA</td>
<td>34.8 ± 0.3</td>
<td>-0.23 ± 0.22</td>
<td>34.3 ± 0.4</td>
<td>-0.26 ± 0.27</td>
</tr>
</tbody>
</table>

Adapted with permission from Weech et al. (16).

1 Values are means ± SEMs, $n = 62$-$65$ per diet group. No significant between-group differences were identified at baseline (one-factor ANOVA or Kruskal-Wallis test for non-normally distributed data). Different superscript letters within a row ($^{a,b}$) identify intervention groups significantly different from one another ($P \leq 0.05$). $\Delta$, change from baseline.

2 Overall between-group diet effects for each $\Delta$ derived from general linear models with baseline values for the variable of interest, BMI, age, sex, and intervention diet as prognostic factors. Post-hoc analyses used Tukey’s correction to adjust for multiple testing.
**Online Supplemental Material**

**Supplemental Table 4** Fasting serum lipids and CVD risk score in adults at moderate risk of CVD at baseline (wk 0) and post-intervention (wk 16)

<table>
<thead>
<tr>
<th></th>
<th>SFA diet</th>
<th>MUFA diet</th>
<th>n-6 PUFA diet</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Post</td>
<td>Δ</td>
<td>Baseline</td>
</tr>
<tr>
<td>TC, mmol/L</td>
<td>5.38 ± 0.12</td>
<td>5.75 ± 0.12***</td>
<td>0.36 ± 0.08a</td>
<td>5.43 ± 0.13</td>
</tr>
<tr>
<td>LDL cholesterol, mmol/L</td>
<td>3.67 ± 0.12</td>
<td>3.97 ± 0.12***</td>
<td>0.30 ± 0.07a</td>
<td>3.71 ± 0.11</td>
</tr>
<tr>
<td>HDL cholesterol, mmol/L</td>
<td>1.45 ± 0.04</td>
<td>1.51 ± 0.05</td>
<td>0.06 ± 0.02</td>
<td>1.48 ± 0.05</td>
</tr>
<tr>
<td>TC/HDL cholesterol ratio</td>
<td>3.92 ± 0.15</td>
<td>4.05 ± 0.15*</td>
<td>0.13 ± 0.06a</td>
<td>3.85 ± 0.13</td>
</tr>
<tr>
<td>LDL cholesterol/HDL cholesterol ratio</td>
<td>2.72 ± 0.13</td>
<td>2.85 ± 0.14*</td>
<td>0.13 ± 0.05a</td>
<td>2.67 ± 0.12</td>
</tr>
<tr>
<td>Non-HDL cholesterol, mmol/L</td>
<td>3.93 ± 0.13</td>
<td>4.24 ± 0.13***</td>
<td>0.31 ± 0.07a</td>
<td>3.95 ± 0.12</td>
</tr>
<tr>
<td>TAG, mmol/L</td>
<td>1.31 ± 0.10</td>
<td>1.34 ± 0.10</td>
<td>0.03 ± 0.05</td>
<td>1.18 ± 0.07</td>
</tr>
<tr>
<td>CVD risk score⁴</td>
<td>3.34 ± 0.23</td>
<td>3.80 ± 0.26***</td>
<td>0.46 ± 0.14a</td>
<td>3.00 ± 0.16</td>
</tr>
</tbody>
</table>

¹ Values are means ± SEMs, n = 59-64 per diet group. No significant between-group differences were identified at baseline (one-factor ANOVA). Different superscript letters within a row (a, b) identify diet groups significantly different from one another (P ≤ 0.05). TAG was log transformed for analysis. CVD, cardiovascular disease; Post, after the intervention; TAG, triacylglycerol; TC, total cholesterol; Δ, change from baseline.

² Analysis of secondary endpoints: overall between-group diet effects for each Δ derived from general linear models with baseline values for the variable of interest, BMI, age, sex, and intervention diet as prognostic factors. Post-hoc analyses used Tukey's correction to adjust for multiple testing. Where the overall diet effect was significant, one-sample t-tests determined whether Δ for each dietary arm was different from zero, identified as *P ≤ 0.05, and ***P ≤ 0.001.

³ ≥2 points indicates a ≥50% risk of CVD relative to the population mean, calculated using the screening tool in Supplemental Table 1 (16).