**Supplementary Table 1. Sex-stratified intervention effects on measures of long-term and short-term stress**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Boys** |  | **Girls** |  |  |
|  | **Baseline1** | **Fish vs. poultry2** | **n** |  | **Baseline1** | **Fish vs. poultry2** | **n** |  | **Pgroup\*sex3** |
| Hair cortisol, ng/g | 2.4 (1.1-6.2) | -0.9 (-2.9, 1.0) | 99 |  | 2.2 (1.1-3.7) | 0.7 (-0.2, 1.6) | 98 |  | 0.074 |
| Cold pressor test (CPT) |  |  |  |  |  |  |  |  |  |
| Removed hand from water, n | 5 | 0.18 [0.01, 1.17] | 99 |  | 3 | NA4 | 98 |  | 0.99 |
| Saliva cortisol, nmol/l |  |  |  |  |  |  |  |  |  |
| *Saliva cortisol before CPT* | 2.4 (1.9-3.1) | -0.07 (-0.34, 0.20) | 99 |  | 2.4 (1.9-3.0) | -0.06 (-0.34, 0.22) | 98 |  | 0.97 |
| *Saliva cortisol after CPT* | 2.8 (1.9-3.9) | -0.33 (-0.76, 0.10) | 99 |  | 2.3 (1.9-3.0) | 0.00 (-0.32, 0.32) | 98 |  | 0.41 |
| BP, mmHg |  |  |  |  |  |  |  |  |  |
| *Systolic BP before CPT* | 107 ± 7 | -1.0 (-4.4, 2.5) | 99 |  | 107 ± 8 | 1.2 (-2.4, 4.7) | 98 |  | 0.39 |
| *Systolic BP after CPT5* | 114 ± 10 | -0.9 (-4.8, 3.1) | 80 |  | 111 ± 9 | 1.3 (-2.2, 4.9) | 80 |  | 0.41 |
| *Diastolic BP before CPT*  | 68 ± 5 | -0.2 (-2.7, 2.2) | 99 |  | 68 ± 5 | -1.2 (-3.3, 0.8) | 98 |  | 0.53  |
| *Diastolic BP after CPT5* | 73 ± 8 | 0.03 (-2.8, 2.8) | 80 |  | 71 ± 6 | 0.7 (-2.2, 3.5) | 80 |  | 0.70 |
| Cardiac measures  |  |  |  |  |  |  |  |  |  |
| *LF before CPT, ms2* | 1571 (1005-2656) | 249 (-203, 700) | 98 |  | 1277 (831-2131) | 152 (-162, 465) | 91 |  | 0.88 |
| *LF during CPT, ms2* | 1515 (1004-2073) | 46 (-412, 504) | 98 |  | 1284 (730-2151) | 247 (-113, 606) | 91 |  | 0.49 |
| *HF before CPT, ms2* | 847 (557-1201) | 136 (-76, 348) | 98 |  | 809 (530-1140) | -16 (-207, 175) | 91 |  | 0.30 |
| *HF during CPT, ms2* | 784 (508-1204) | 142 (-62, 346) | 98 |  | 824 (556-1217) | 184 (12, 357) | 91 |  | 0.82 |
| *LF:HF before CPT* | 2.3 (1.6-3.3) | 0.15 (-0.47, 0.77) | 98 |  | 2.1 (1.1-3.2) | 0.07 (-0.40, 0.53) | 91 |  | 0.95 |
| *LF:HF during CPT* | 2.2 (1.5-3.8) | -0.23 (-0.98, 0.52) | 98 |  | 1.8 (1.1-3.2) | -0.20 (-0.76, 0.36) | 91 |  | 0.87 |
| *NN before CPT, ms* | 705 ± 74 | 8 (-20, 36) | 98 |  | 679 ± 57 | 19 (-4, 41) | 91 |  | 0.54 |
| *NN during CPT, ms* | 687 ± 87 | 21 (-8, 51) | 98 |  | 671 ± 77 | 17 (-6, 41) | 91 |  | 0.61 |
| *SDNN before CPT, ms* | 76 ± 27 | 4 (-5, 13) | 98 |  | 68 ± 21 | 4 (-4, 12) | 91 |  | 0.91 |
| *SDNN during CPT, ms* | 71 ± 22 | 1 (-7, 10) | 98 |  | 65 ± 20 | 4 (-2, 11) | 91 |  | 0.86 |

1Baseline values are presented as mean ± SD, median (25th-75th percentile) or numbers for boys and girls irrespective of intervention group.

2 Differences between the diet groups at endpoint are presented as difference in means (95% CI) or OR [95% CI] from ANCOVA (all continuous outcomes) or logistic regression models (“removed hand from water”), respectively. All models were adjusted for baseline. Models for measures after and during the CPT were additionally adjusted for the exact time in the 2-min interval when the hand was immersed in cold water at endpoint and the difference relative to the time at baseline as well as total time the hand was in the water at endpoint and the difference relative to the time at baseline.

3P value for diet\*group interaction. Some BP and cardiac measures are missing due to failure to measure BP after the CPT and lack of hearth rhythm recordings or failure to retrieve data from the recordings.

4Too few girls removed hand to run model.

5Adjusted for measurement time after CPT.

Abbriviations: CPT, cold pressor test; BP, blood pressure; HF, high frequency (0.15-0.4 Hz) power; LF, low frequency (0.04-0.15 Hz) power; NN, mean of all normal inter-beat intervals; SDNN, SD of all NN-intervals.



**Supplementary Figure 1.** Study flow diagram



**Supplementary Figure 2.** The effect of a 12 week dietary intervention with oily fish or poultry on cardiac low frequency power (0.15-0.4 Hz) from 5 min before until 10 min after a cold-pressor test (CPT indicated with vertical lines). The stress response is shown separately for the in the fish (black) and poultry (grey) group. The dots represent means with 95% CI in each 1-min segment. Differences between groups in all 1-min segments were investigated o log-transformed values by ANCOVA adjusting for baseline values and sex. Group differences in the individual segments are indicated by asterisks: \* P<0.05 and (\*) P<0.10.