Supporting Information

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SI Text

Blood pressure was taken at the left arm in a seating position before and after cognitive testing. Body fat was measured using a bioelectrical impedance analysis (BIA) apparatus (Data Input) in horizontal position over right hand and right foot. Data were analyzed using the software NutriPlus (Data Input).

Blood samples for catecholamines were analyzed using a high performance liquid chromatography (HPLC) assay kit (Chromsystems) according to Maycock and Frayn (85). Reversed-phase chromatography was performed on an isocratic Kontron 422 liquid chromatograph interfaced with a model 41000 electrochemical detector (Chromsystems). Serum levels of C-reactive protein (CRP) were assayed by a highly sensitive immunonephelometric method using the BN2 nephelometer (Siemens). Concentrations of insulin and IGF-1 in serum were analyzed by immunological chemiluminescence-methods, using an ADVIA Centaur XP (insulin) and an Immulite 2500 system (IGF-1; both Siemens). Serum glucose levels were measured by hexokinase method with a Modular P analyzer (Roche Diagnostics). Serum concentrations of TNF-alpha were measured using ELISA kits (IBL) according to the manufacturers' instructions. The intraassay variation of all tests was $<10\%$.

Table S1. Physiological parameters of participants at baseline and after the intervention period

	Group 1 (caloric restriction)			Group 2 (UFA enhancement)			Control (no change)		
Parameter	Pre	Post	*P**	Pre	Post	*P**	Pre	Post	*P**
Weight, kg	87.9 ± 14.5	85.5 ± 13.9	0.005	79 ± 10.5	80 ± 11	0.13	80.3 ± 9.8	81 ± 9.7	0.43
Body mass index, kg/m^2	29.9 ± 3.8	29.1 ± 3.8	0.004	26.9 ± 3.2	27.3 ± 3.7	0.12	27.4 ± 3.4	27.7 ± 3.4	0.42
Waist-to-hip ratio	0.9 ± 0.1	0.9 ± 0.1	n.s.	0.88 ± 0.9	0.88 ± 0.7	n.s.	0.86 ± 0.1	0.87 ± 0.1	n.s.
Body fat, %	32.7 ± 7.1	31.9 ± 7.4	n.s.	29.3 ± 8.1	29.8 ± 8.7	n.s.	30.2 ± 9	30.1 ± 9	n.s.
Systolic blood pressure, mm HG†	141.6 ± 17.2	136 ± 19.2	n.s.	126.8 ± 11.1	122.2 ± 12.7	n.s.	139.2 ± 23.2	131.8 ± 18.2	n.s.
Diastolic blood pressure, mm HG†	81.6 ± 12.8	79.8 ± 9.5	n.s.	76.9 ± 6.5	73.9 ± 7.2	n.s.	86.7 ± 6.9	81.2 ± 9	n.s.
Fasting Serum levels									
Triglyceride, mg/dL	184.3 ± 107	151.6 ± 71	n.s.	130.1 ± 50	135.2 ± 70	n.s.	149.7 ± 41.3	134.7 ± 48.8	n.s.
Cholesterol, mg/dL	248.2 ± 58	237.5 ± 46	n.s.	244.7 ± 36	243.2 ± 70	n.s.	249.4 ± 26	257.4 ± 5.4	n.s.
HDL cholesterol, mg/dL	56.9 ± 14.1	56.2 ± 14.4	n.s.	61.7 ± 14.4	61.3 ± 16.3	n.s.	57.8 ± 8.5	57.4 ± 7	n.s.
LDL cholesterol, mg/dL	154.4 ± 47	151 ± 38	n.s.	156.9 ± 35	154.9 ± 34	n.s.	161.7 ± 38	173.1 ± 47	n.s.
HDL-to-LDL ratio	0.39 ± 0.1	0.39 ± 0.1	n.s.	0.42 ± 0.2	0.43 ± 0.2	n.s.	0.38 ± 0.1	0.35 ± 0.1	n.s.
Insulin, mU/L	15.4 ± 13.8	11.9 ± 6.3	n.s.‡	8.7 ± 4.3	8.8 ± 4.6	n.s.	9.1 ± 7.1	9.7 ± 7.4	n.s.
Glucose, mg/dL	103.9 ± 22.7	99.3 ± 16.6	n.s.	98.3 ± 9	98.6 ± 11.1	n.s.	104 ± 18	106.4 ± 18.8	n.s.
BDNF, pg/mL	1135 ± 76	1098 ± 62	n.s.	1265 ± 63	1260 ± 56	n.s.	1213 ± 142	1310 ± 183	n.s.
IGF-1, ng/mL	136.3 ± 34	144.4 ± 38	n.s.	122.9 ± 45	133.1 ± 49	n.s.	120.9 ± 53	125.8 ± 47	n.s.
Dopamine, pg/mL	52.6 ± 43	35 ± 34.1	n.s.	45.9 ± 50.4	39.1 ± 36.3	n.s.	43.6 ± 49.8	78.7 ± 106.1	n.s.
Epinephrine, pg/mL	50 ± 34.4	44.1 ± 28.1	n.s.	32.2 ± 21.8	33.3 ± 19.7	n.s.	36.2 ± 21.4	33.3 ± 24.8	n.s.
Norepinephrine, pg/mL	463.4 ± 141	480.3 ± 165	n.s.	288.6 ± 66	162.4 ± 37	n.s.	532.5 ± 253	517.5 ± 268	n.s.
hs-CRP, pg/mL	0.41 ± 0.69	0.19 ± 0.16	n.s.§	0.23 ± 0.22	0.22 ± 0.22	n.s.	0.14 ± 0.1	0.23 ± 0.22	n.s.
TNF-α , pg/mL	2.04 ± 2.1	1.67 ± 2.38	n.s.	3.67 ± 3	2.68 ± 3.3	n.s.	2.1 ± 1.8	2.26 ± 2	n.s.

Data are given as mean ± SD. UFA, unsaturated fatty acids.

*Significant differences between premeasurements and postmeasurements within groups were assessed by post-hoc tests whether the interaction term 'TIME' x 'GROUP' was significant.

†Blood pressure significantly decreased in all groups over the course of several measurements, possibly because of decreased nervousness during measurements.

‡Mean insulin levels in the caloric restriction group decreased after intervention ($P = 1.12$)

§Mean hs-CRP levels in the caloric restriction group decreased after intervention ($P = 1.7$)

Table S2. Daily dietary intake of participants at baseline and after the intervention period

	Group 1 (caloric restriction)			Group 2 (UFA enhancement)			Control (no change)		
	Pre	Post	*P**	Pre	Post	*P**	Pre	Post	*P**
Calories, kcal	1,843 ± 479	1,630 ± 353	n.s.	2,124 ± 563	2,209 ± 614	n.s.	2,420 ± 804	2,100 ± 247	n.s.
Protein, g	77.25 ± 20.8	70.79 ± 16.6	n.s.	81.92 ± 21.6	87.63 ± 22.9	n.s.	102.21 ± 60.7	80.74 ± 12.1	n.s.
Fat, g	69.62 ± 23.3	56.89 ± 15.3	n.s.	80.35 ± 25.9	85.38 ± 27.2	n.s.	89.63 ± 39.2	67.00 ± 26.3	n.s.
Carbohydrates, g	191.72 ± 74.8	73.88 ± 88.7	n.s.	231.30 ± 72.6	93.35 ± 126.5	n.s.	259 ± 65.6	111.9 ± 137.2	n.s.
Alcohol, g	12.59 ± 10.9	10.90 ± 5.4	n.s.	18.01 ± 18.1	15.06 ± 9.5	n.s.	21.09 ± 17	14.28 ± 8.1	n.s.
Unsaturated fatty acids (UFA), %	51.06 ± 5.4	64.1 ± 8.4	n.s.	50.26 ± 5.9	67.86 ± 8.2	n.s.	47.70 ± 3.9	64.09 ± 14.1	n.s.
polyUFA, %	15.39 ± 3.5	29 ± 8.9	n.s.	14.62 ± 3	31.88 ± 8.8	n.s.	13.74 ± 3.2	28.28 ± 10.8	n.s.
monoUFA, %	35.67 ± 3.8	35.1 ± 3.2	n.s.	35.64 ± 4.2	35.98 ± 4	n.s.	33.96 ± 2.7	35.81 ± 5.1	n.s.
Saturated fatty acids, %	38.37 ± 5.5	35.17 ± 7	n.s.	39.48 ± 4.8	28.12 ± 8.55	n.s.	38.68 ± 7.9	30.64 ± 10.4	n.s.
UFA-to-Saturated fatty acids ratio	0.92 ± 0.3	1.14 ± 0.6	0.2	1.05 ± 0.4	2.35 ± 1.2	<0.001	1.2 ± 0.7	1.86 ± 1.9	0.39
Marine sources of omega-3 UFA, g	0.17 ± 0.2	0.09 ± 0.1	n.s.	0.16 ± 0.3	0.21 ± 0.2	n.s.	0.47 ± 0.4	0.18 ± 0.2	n.s.

Data are given as mean ± SD. *, Significant differences between premeasurements and postmeasurements within groups were assessed by post-hoc ANOVA $_{RM}$ testings whether the interaction term TIME × GROUP was significant.

Table S3. Demographic characteristics of participants

Characteristic	Group 1 (caloric restriction)	Group 2 (UFA enhancement)	Control (no change)	*P**	Total
n	19	20	10		49
Women, no.	10	12	6		28
Age, years ± SD (minimum/maximum)	59.8 ± 8.1 (50/72)	60.8 ± 7.8 (51/79)	61.3 ± 3.7 (50/75)	n.s.	60.5 ± 7.7
Body mass index, kg/m^2 ± SD (minimum/maximum)	29.9 ± 3.9 (23.7/39.3)	26.9 ± 3.1 (21.8/34.4)	27.4 ± 3.4 (23.1/33.7)	1 > 2: 0.029*, 1 vs 3: n.s.	28.2 ± 3.7
Education, years ± SD (minimum/maximum)	15.6 ± 5.2 (10/30)	15.5 ± 4.1 (10/23)	17.1 ± 3.9 (12/24)	n.s.	15.9 ± 4.5

UFA, unsaturated fatty acids. *, significant differences between groups assessed by post-hoc univariate ANOVA testings. n.s., not significant.