

Table S1. Fatty acid changes in plasma

	Placebo					Treatment group					Between groups				
	W0		W8			W0		W8			p-value W0	p-value W8	p-value Δ W8- W0 Treatment effect		
Fatty acids [mg/100μl]															
14:1	0.20	±	0.12	0.24	±	0.20	0.25	±	0.22	0.45	±	0.34***	0.743	0.002	0.002
16:1	1.26	±	0.71	1.44	±	0.68*	1.45	±	0.65	1.81	±	0.62***	0.120	0.005	0.005
16:1 n-7	5.45	±	3.14	5.91	±	3.08	5.79	±	2.00	7.36	±	2.88***	0.159	0.009	0.009
17:1	0.37	±	0.28	0.41	±	0.31	0.41	±	0.22	0.58	±	0.23***	0.078	< 0.001	< 0.001
18:1 n-9 c	41.49	±	15.46	44.24	±	14.19	44.96	±	17.83	46.45	±	20.70	0.147	0.588	0.588
18:1	3.56	±	1.78	3.79	±	1.74	4.12	±	1.67	5.16	±	1.53**	0.150	< 0.001	< 0.001
20:1	0.32	±	0.22	0.42	±	0.42	0.36	±	0.24	0.56	±	0.43	0.496	0.104	0.104
18:2 n-6 (LA)	53.89	±	20.00	60.35	±	18.87*	60.35	±	22.01	70.58	±	18.97***	0.159	0.022	0.022
20:2 n-6	0.39	±	0.16	0.42	±	0.15	0.39	±	0.13	0.49	±	0.24**	0.666	0.260	0.260
18:3 n-6	1.07	±	0.62	1.20	±	0.63	1.40	±	0.79	1.51	±	0.78	0.055	0.067	0.067
18:3 n-3 (ALA)	1.26	±	0.82	1.36	±	0.94	1.56	±	1.27	1.88	±	1.25*	0.369	0.018	0.018
20:3 n-6	3.91	±	2.16	4.50	±	1.98*	4.56	±	1.91	5.35	±	1.82**	0.036	0.035	0.035
20:4 n-6 (AA)	15.25	±	7.34	17.93	±	7.12**	19.16	±	6.33	20.85	±	6.58*	0.003	0.020	0.020
20:5 n-3 (EPA)	1.70	±	1.16	2.50	±	4.04*	2.68	±	1.80	5.48	±	2.12***	0.002	< 0.001	< 0.001
22:5 n-3 (DPA)	1.85	±	1.30	2.60	±	1.75**	2.44	±	1.52	3.62	±	1.72***	0.085	0.004	0.004
22:6 n-3 (DHA)	6.46	±	2.91	8.65	±	6.34**	9.64	±	4.36	12.46	±	3.39**	< 0.001	< 0.001	< 0.001
PUFA	0.60	±	0.41	0.73	±	0.39	0.70	±	0.39	0.62	±	0.40	0.091	0.251	0.251
n-3 FA	11.27	±	5.01	15.11	±	12.09**	16.32	±	6.79	23.44	±	6.45***	< 0.001	< 0.001	< 0.001
n-6 FA	74.51	±	29.09	84.39	±	27.04*	85.86	±	28.73	98.79	±	26.10**	0.078	0.012	0.012

Means of fatty acid concentrations in plasma in mg/100 μL at study time points W0 and W8 in the treatment group and the placebo group are shown, as well as the p-value of W8 as group differences. Abbreviations: AA, arachidonic acid; ALA, α-linolenic acid; DHA, docosahexaenoic acid; DPA, docosapentaenoic acid; EPA, eicosapentaenoic acid; LA, linoleic acid; n, omega; W, week. Statistics: * differences between week 0 and W8 within the placebo group and the treatment and p-value at W8 as group difference. *p < 0.05; **p < 0.01; and ***p < 0.001

Table S2. Physical function tests, SCFAs and gut barrier markers

			Placebo						Treatment			Between groups											
W0			W8			Δ W8-W0 Treatment effect			W0			W8			Δ W8-W0 Treatment effect			W8			Δ W8-W0 Treatment effect		
<i>Physical function tests</i>																							
5 STS [s]	10.9	±	3.2	10.1*	±	3.3	-0.75	±	1.78	11	±	3.1	10.3*	±	2.9	-0.67	±	2.38	0.503	0.823			
WOMAC score	14.1	±	14.5	13.3	±	16.7	-0.8	±	6.8	19.1	±	17.7	15.8*	±	17.7	-3.4	±	7.1	0.346	0.095			
<i>SCFAs [μmol/g wet mass]</i>																							
Acetic acid	61.7	±	26.5	58.5	±	23.2	-3.15	±	16.05	62.5	±	25.9	62.1	±	21.9	-0.34	±	17.27	0.350	0.480			
Propionic acid	16.6	±	7.6	15.4	±	6.4	-1.13	±	5.56	19.3	±	8.7	17.1*	±	9.6	-2.20	±	7.92	0.381	0.146			
Iso-butyric acid	1.7	±	0.8	1.7	±	0.8	0.03	±	1.04	1.6	±	0.7	1.5	±	0.5	-0.13	±	0.69	0.259	0.442			
Butyric acid	13.6	±	6.9	12.1	±	6.1	-1.52	±	6.24	14.2	±	7.3	14.2	±	8.6	0.01	±	8.04	0.362	0.371			
Iso-valeric acid	2.1	±	1.2	2.3	±	1.1	0.11	±	1.52	2.0	±	0.9	1.8	±	0.8	-0.14	±	0.99	0.102	0.407			
Valeric acid	1.9	±	0.9	1.8	±	0.9	-0.09	±	1.10	1.8	±	0.8	1.9	±	1.0	0.02	±	1.02	0.888	0.682			
Iso-caproic acid	0.2	±	0.2	0.2	±	0.2	0.00	±	0.18	0.2	±	0.2	0.2	±	0.2	0.02	±	0.17	0.791	0.662			
Hexanoic acid	0.5	±	0.5	0.5	±	0.5	-0.05	±	0.32	0.4	±	0.5	0.4	±	0.5	-0.02	±	0.45	0.636	0.440			
Heptanoic acid	0.1	±	0.1	0.1	±	0.1	-0.01	±	0.08	0.1	±	0.1	0.1	±	0.1	0.00	±	0.08	0.534	0.407			
<i>Multi-sugar urinary recovery test</i>																							
<i>0-5 hrs</i>																							
L/R ratio	0.176	±	0.642	0.059	±	0.043	-	±	0.606	0.066	±	0.052	0.074	±	0.059	0.008	±	0.051	0.238	0.358			
sucrose [μg/mL]	29.37	±	44.85	31.78	±	54.70	2.41	±	60.09	45.17	±	153.94	50.39	±	110.27	5.44	±	100.79	0.718	0.439			
<i>5-24 hrs</i>																							
S/E ratio	0.025	±	0.010	0.031	±	0.018	0.005	±	0.018	0.031	±	0.033	0.027	±	0.010	-0.004	±	0.030	0.541	0.541			
<i>Gut barrier markers</i>																							
I-FABP [pg/ml]	482	±	354	500	±	313	17.45	±	230.90	574	±	348	563	±	317	4.01	±	392.50	0.251	0.326			
Zonulin	191.9	±	137.8	185.9	±	115.6	-	±	145,8	184.3	±	149.3	165.6	±	111.6	-18.69	±	166.1	0.329	0.798			

Values are given as mean \pm SD. Statistic:* Shows significant differences between W0 and W8 within each group. Abbreviations: IFN- γ ; interferon gamma; IL-, Interleukin-; TNF- α , tumor necrosis factor- α ; W, week; L/R, lactulose/rhamnose; S/E, sucralose/erythritol. Statistics: no difference within groups and between groups.