Online Supplemental Material

Supplemental table 1. EPA and DHA concentrations at baseline in the postprandial and dietary supplementation studies

Lipid structure	Fatty acid concentration ($\mu mol*L^{-1}$)									
	uTAG		FFA		rTAG(EC)		EE		rTAG	
	Median	Range	Median	Range	Median	Range	Median	Range	Median	Range
Postprandial study										
TAG										
EPA	9	39	8	15	6	13	6	10	8	9
DHA	12	149	13	24	9	15	9	13	10	11
PC										
EPA	60	149	58	101	47	82	47	174	52	69
DHA	140	149	132	185	143	132	145	212	110	203
NEFAs										
EPA	2	5	2	3	2	10	2	3	2	3
DHA	7	23	7	8	6	20	7	5	6	8
Supplementation study										
Men										
TAG										
EPA	5	21	10	27	10	31	10	44		
DHA	16	20	12	21	12	24	12	26		
PC										
EPA	43	67	47	56	56	51	37	56		
DHA	99	123	121	145	107	78	126	107		
NEFAs										
EPA	1	1	1	3	1	2	1	1		
DHA	3	4	4	4	3	8	3	6		
Women										
TAG										
EPA	16	37	14	21	9	50	20	46		
DHA	13	40	16	32	11	49	19	56		
PC										
EPA	37	86	40	27	27	97	39	125		
DHA	121	147	96	236	125	92	114	157		
NEFAs										

EPA	1	2	1	2	1	3	1	2
DHA	3	6	5	9	4	5	4	4

Values are median and range, *n* 9/group. EE, ethyl ester; FFA, free fatty acid; uTAG, unmodified triglyceride; rTAG(EC), enteric protected re-esterified triglyceride; rTAG, re-esterified triglyceride. There were no significant differences in the concentrations of EPA and DHA between groups at baseline within each study

Supplemental Table 2. Comparisons of postprandial EPA and DHA incorporation into different lipid classes

Comparison between lipid classes per supplement type	Friedman's test				Wilcoxon Signed-rank test								
					TAG vs PC			TAG vs NEFA			PC vs NEFA		
	X^2	DF	n	P	Z	P	r	Z	P	r	Z	P	r
EPA iAUC, $\mu mol*h^{-1}*L^{-1}$													
Unmodified TAG	14.9	2	9	<0.01	-2.3	0.02	-0.5	-2.7	0.01	-0.6	-2.7	0.01	-0.6
FFA	14.0	2	9	<0.01	-1.2	0.21	-0.3	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG (EC)	18.0	2	9	<0.01	-2.7	0.01	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
EE	18.0	2	9	<0.01	-2.7	0.01	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG	14.9	2	9	<0.01	-1.5	0.14	-0.4	-2.7	0.01	-0.6	-2.7	0.01	-0.6
EPA C_{max}, $\mu mol*L^{-1}$													
Unmodified TAG	14.2	2	9	<0.01	-1.6	0.11	-0.4	-2.7	0.01	-0.6	-2.4	0.02	-0.6
FFA EPA	16.2	2	9	<0.01	-2.3	0.02	-0.5	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG (EC)	14.9	2	9	<0.01	-2.3	0.02	-0.5	-2.7	0.01	-0.6	-2.7	0.01	-0.6
EE	14.9	2	9	<0.01	-1.6	0.11	-0.4	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG	14.3	2	8	<0.01	-2.0	0.04	-0.5	-2.5	0.01	-0.6	-2.5	0.01	-0.6
EPA T_{max}, h													
Unmodified TAG	3.1	2	9	0.22	-0.3	0.75	-0.1	-1.8	0.08	-0.4	-0.52	0.61	-0.1
FFA	1.6	2	9	0.45	-0.1	0.92	-0.02	-1.3	0.18	-0.3	-0.4	0.67	-0.1
rTAG (EC)	1.2	2	9	0.55	-0.5	0.61	-0.1	-0.8	0.48	-0.2	-1.4	0.16	-0.3
EE	1.2	2	9	0.54	-0.6	0.57	-0.1	-0.4	0.71	-0.1	-0.4	0.67	-0.1
rTAG (EC[1])	3.6	2	8	0.17	-0.2	0.83	-0.1	-2.1	0.04	-0.5	0.0	1.00	0.0
DHA iAUC, $\mu mol*h^{-1}*L^{-1}$													
Unmodified TAG	13.6	2	9	<0.01	-1.5	0.14	-0.4	-2.7	0.01	-0.6	-2.7	0.01	-0.6
FFA	14.0	2	9	<0.01	-0.4	0.68	-0.1	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG (EC)	13.6	2	9	<0.01	-0.7	0.52	-0.2	-2.7	0.01	-0.6	-2.7	0.01	-0.6
EE	13.6	2	9	<0.01	-0.7	0.52	-0.2	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG	13.6	2	9	<0.01	-1.4	0.17	-0.3	-2.7	0.01	-0.6	-2.7	0.01	-0.6
DHA C_{max}, $\mu mol*L^{-1}$													
Unmodified TAG	10.8	2	8	0.01	-1.5	0.14	-0.4	-2.1	0.04	-0.5	-2.5	0.01	-0.6
FFA	13.0	2	8	<0.01	-0.9	0.34	-0.2	-2.7	0.01	-0.7	-2.5	0.01	-0.6
rTAG (EC)	14.0	2	9	<0.01	-1.1	0.29	-0.3	-2.7	0.01	-0.6	-2.7	0.01	-0.6

EE	14.3	2	8	<0.01	-2.2	0.03	-0.6	-2.7	0.01	-0.7	-2.5	0.01	-0.6
rTAG	12.0	2	8	<0.01	-1.5	0.14	-0.4	-2.5	0.12	0.6	-2.5	0.12	-0.6
DHA $T_{max,}$ h													
Unmodified TAG	9.2	2	8	0.01	-0.5	0.60	-0.1	-2.3	0.02	-0.6	-2.4	0.02	-0.6
FFA	5.8	2	8	0.05	-1.6	0.12	-0.4	-1.9	0.06	-0.5	-1.7	0.09	-0.4
rTAG (EC)	5.6	2	9	0.06	-1.5	0.13	-0.4	-1.4	0.16	-0.3	-2.2	0.03	-0.5
EE	11.6	2	8	<0.01	-1.8	0.08	-0.5	-1.8	0.07	-0.5	-2.5	0.01	-0.6
rTAG	7.7	2	8	0.02	-0.3	0.75	-0.1	-2.3	0.02	-0.6	-2.2	0.03	-0.6

EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG, re-esterified TAG; rTAG(EC), enteric protected r TAG.

Supplemental Table 3. Relationship between BMI and the iAUC for incorporation of EPA and DHA into individual plasma lipid classes during the postprandial period.

Comparison between lipid classes per supplement type	BMI (*n* 9/ supplement)		Age (*n* 9/ supplement)	
	β	P	β	P
Plasma TAG EPA iAUC, $\mu mol*h^{-1}*L^{-1}$				
Unmodified TAG	-0.03	0.93	-0.47	0.20
FFA	0.26	0.50	0.00	1.00
rTAG (EC)	0.42	0.26	-0.19	0.63
EE	-0.08	0.83	-0.67	0.05
rTAG	0.42	0.26	0.03	0.93
Plasma TAG DHA iAUC, $\mu mol*h^{-1}*L^{-1}$				
Unmodified TAG	-0.03	0.95	-0.45	0.35
FFA	0.18	0.65	-0.02	0.97
rTAG (EC)	0.53	0.15	0.05	0.90
EE	-0.04	0.92	-0.54	0.14
rTAG	0.18	0.65	-0.03	0.93
Plasma PC EPA iAUC, $\mu mol*h^{-1}*L^{-1}$				
Unmodified TAG	-0.3	0.43	-0.13	0.74
FFA	0.17	0.67	0.23	0.56
rTAG (EC)	0.68	0.05	0.54	0.14
EE	-0.23	0.54	-0.68	0.04
rTAG	-0.75	0.02	-0.51	0.16
Plasma PC DHA iAUC, $\mu mol*h^{-1}*L^{-1}$				
Unmodified TAG	-0.45	0.22	-0.17	0.67
FFA	0.41	0.27	0.48	0.19
rTAG (EC)	0.47	0.20	0.83	<0.01
EE	-0.27	0.49	0.14	0.71
rTAG	0.04	0.92	0.24	0.54
Plasma NEFA EPA iAUC, $\mu mol*h^{-1}*L^{-1}$				
Unmodified TAG	-0.23	0.54	-0.29	0.44
FFA	0.28	0.47	0.11	0.78

rTAG (EC)	0.42	0.26	0.06	0.89
EE	-0.32	0.40	-0.25	0.51
rTAG	0.11	0.78	-0.40	0.28
Plasma NEFA DHA iAUC, $\mu mol*h^{-1}*L^{-1}$				
Unmodified TAG	-0.22	0.57	-0.56	0.12
FFA	0.51	0.16	0.43	0.25
rTAG (EC)	0.30	0.43	0.07	0.86
EE	-0.03	0.93	-0.44	0.24
rTAG	-0.05	0.90	0.03	0.95

EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG(EC), enteric protected re-esterified TAG.

Supplemental table 4. Total plasma lipid concentrations at baseline and end of dietary supplementation study

Lipid structure	Plasma lipid concentration ($\mu mol*L^{-1}$)															
	uTAG				FFA				rTAG(EC)				EE			
	Start		End		Start		End		Start		End		Start		End	
	Med	Range	Med	Range	Med	Range	Med	Range	Med	Range	Med	Range	Med	Range	Med	Range
Men																
Total TAG	1648	3732	2555	7414	1192	2043	1499	4845	1974	2833	1724	3960	1639	4092	1852	2249
Total PC	4241	1936	4319	6077	4120	2519	3128	5161	4415	2161	3948	4015	4587	2822	4067	2280
Total NEFA	314	347	369	669	409	673	344	1654	399	1203	350	427	365	408	416	1528
Women																
Total TAG	1310	4045	1411	1744	1809	1761	1809	3659	1326	3438	934	1438	1264	3435	3830	3191
Total PC	4262	3901	3824	3011	4527	4084	3948	4469	4366	3256	3566	6273	3830	3191	3639	3817
Total NEFA	359	920	360	573	554	589	310	1091	421	588	404	547	390	276	317	1312

Values are median (Med) and range, *n* 9/group. EE, ethyl ester; FFA, free fatty acid; uTAG, unmodified triglyceride; rTAG(EC), enteric protected re-esterified triglyceride; rTAG, re-esterified triglyceride. There were no significant differences between the start and end of the study in any of the lipid classes that were measured.

Supplemental Table 5. Comparisons of EPA and DHA incorporation into different lipid classes following 12 weeks' supplementation in healthy men

Comparison between lipid classes per supplement type	Friedman's test				Wilcoxon Signed-rank test								
					TAG vs PC			TAG vs NEFA			PC vs NEFA		
	X^2	DF	n	P	Z	P	r	Z	P	r	Z	P	r
EPA iAUC, $\mu mol*weeks^{-1}*L^{-1}$													
Unmodified TAG	18	2	9	<0.01	-2.7	0.01	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
FFA	18	2	9	<0.01	-2.7	0.01	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG(EC)	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EE	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EPA C_{max}, $\mu mol*L^{-1}$													
Unmodified TAG	16	2	9	<0.01	-2.7	0.01	-0.6	-2.4	0.02	-0.6	-2.7	0.01	-0.6
FFA	15	2	9	<0.01	-2.7	0.01	-0.6	-2.3	0.02	-0.5	-2.7	0.01	-0.6
rTAG(EC)	18	2	10	<0.01	-2.8	0.01	-0.6	-2.7	<0.01	-0.6	-2.8	0.01	-0.6
EE	15	2	10	<0.01	-2.8	0.01	-0.6	-1.0	0.33	-0.2	-2.8	0.01	-0.6
EPA T_{max}, weeks													
Unmodified TAG	0.2	2	9	0.90	-0.3	0.74	-0.1	-0.2	0.83	-0.1	-0.3	0.80	-0.1
FFA	4.7	2	9	0.10	-1.7	0.09	-0.4	-1.5	0.13	-0.4	-0.3	0.79	-0.6
rTAG(EC)	0.4	2	10	0.82	-0.6	0.54	-0.1	-0.3	0.74	-0.1	-1.0	0.33	-0.2
EE	1.6	2	10	0.44	-0.4	0.68	-0.1	-1.1	0.29	-0.2	-0.9	0.35	-0.2
DHA iAUC, $\mu mol*weeks^{-1}*L^{-1}$													
Unmodified TAG	16	2	9	<0.01	-2.4	0.02	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
FFA	18	2	9	<0.01	-2.7	0.01	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG(EC)	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EE	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
DHA C_{max}, $\mu mol*L^{-1}$													
Unmodified TAG	8	2	9	0.02	-2.3	0.02	-0.5	-2.2	0.03	-0.5	-2.5	0.01	-0.6
FFA	16	2	9	<0.01	-2.1	0.04	-0.5	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG EC)	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EE	12	2	10	<0.01	-2.6	0.01	-0.6	-1.3	0.20	-0.3	-2.8	0.01	-0.6
DHA T_{max}, weeks													
Unmodified TAG	<1	2	9	0.80	-0.4	0.73	-0.1	-1.1	0.29	-0.3	-0.6	0.53	-0.1

FFA	2	2	9	0.37	-1.2	0.23	-0.3	-0.8	0.44	-0.2	-0.5	0.62	-0.2
rTAG (EC)	3	2	10	0.25	-0.6	0.53	-0.1	-0.8	0.44	-0.2	-1.1	0.29	-0.2
EE	3	2	10	0.21	-1.4	0.18	-0.3	-1.3	0.21	-0.29	-0.1	0.92	<0.1

EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG(EC), enteric protected re-esterified TAG.

Supplemental Table 6. Comparisons of EPA and DHA incorporation into different lipid classes following 12 weeks' supplementation in healthy women

| | Friedman's test | | | | Wilcoxon Signed-rank test | | | | | | | | |
| | | | | | TAG vs PC | | | TAG vs NEFA | | | PC vs NEFA | | |
Comparison between lipid classes per supplement type	X^2	DF	n	P	Z	P	r	Z	P	r	Z	P	r
EPA iAUC, $\mu mol*weeks^{-1}*L^{-1}$													
Unmodified TAG	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
FFA	16	2	9	<0.01	-2.4	0.02	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG (EC)	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EE	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EPA C_{max}, $\mu mol*L^{-1}$													
Unmodified TAG	16	2	10	<0.01	-2.8	0.01	-0.6	-1.5	0.14	-0.3	-2.8	0.01	-0.6
FFA	15	2	9	<0.01	-2.7	0.01	-0.6	-1.8	0.07	-0.4	-2.7	0.01	-0.6
rTAG (EC)	16	2	10	<0.01	-2.8	0.01	-0.6	-2.2	0.03	-0.5	-2.8	0.01	-0.6
EE	15	2	10	<0.01	-2.8	0.01	-0.6	-0.4	0.72	-0.1	-2.8	0.01	-0.6
EPA T_{max}, h													
Unmodified TAG	1.3	2	10	0.52									
FFA	1.3	2	9	0.53									
rTAG (EC)	1.5	2	10	0.48									
EE	9.6	2	10	0.1									
DHA iAUC, $\mu mol*weeks^{-1}*L^{-1}$													
Unmodified TAG	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
FFA	18	2	9	<0.01	-2.7	0.01	-0.6	-2.7	0.01	-0.6	-2.7	0.01	-0.6
rTAG (EC)	18	2	10	<0.01	-2.7	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
EE	20	2	10	<0.01	-2.8	0.01	-0.6	-2.8	0.01	-0.6	-2.8	0.01	-0.6
DHA C_{max}, $\mu mol*L^{-1}$													
Unmodified TAG	13	2	10	<0.01	-2.8	0.01	-0.6	-1.8	0.07	-0.4	-2.7	0.01	-0.6
FFA	11	2	9	<0.01	-2.5	0.01	-0.6	-0.1	0.95	<-0.1	-2.7	0.01	-0.6
rTAG (EC)	6	2	10	0.05	-1.5	0.14	-0.3	-2.2	0.03	-0.5	-2.7	0.01	-0.6
EE	15	2	10	<0.01	-2.8	0.01	-0.6	-0.6	0.58	-0.1	-2.8	0.01	-0.6
DHA T_{max}, h													

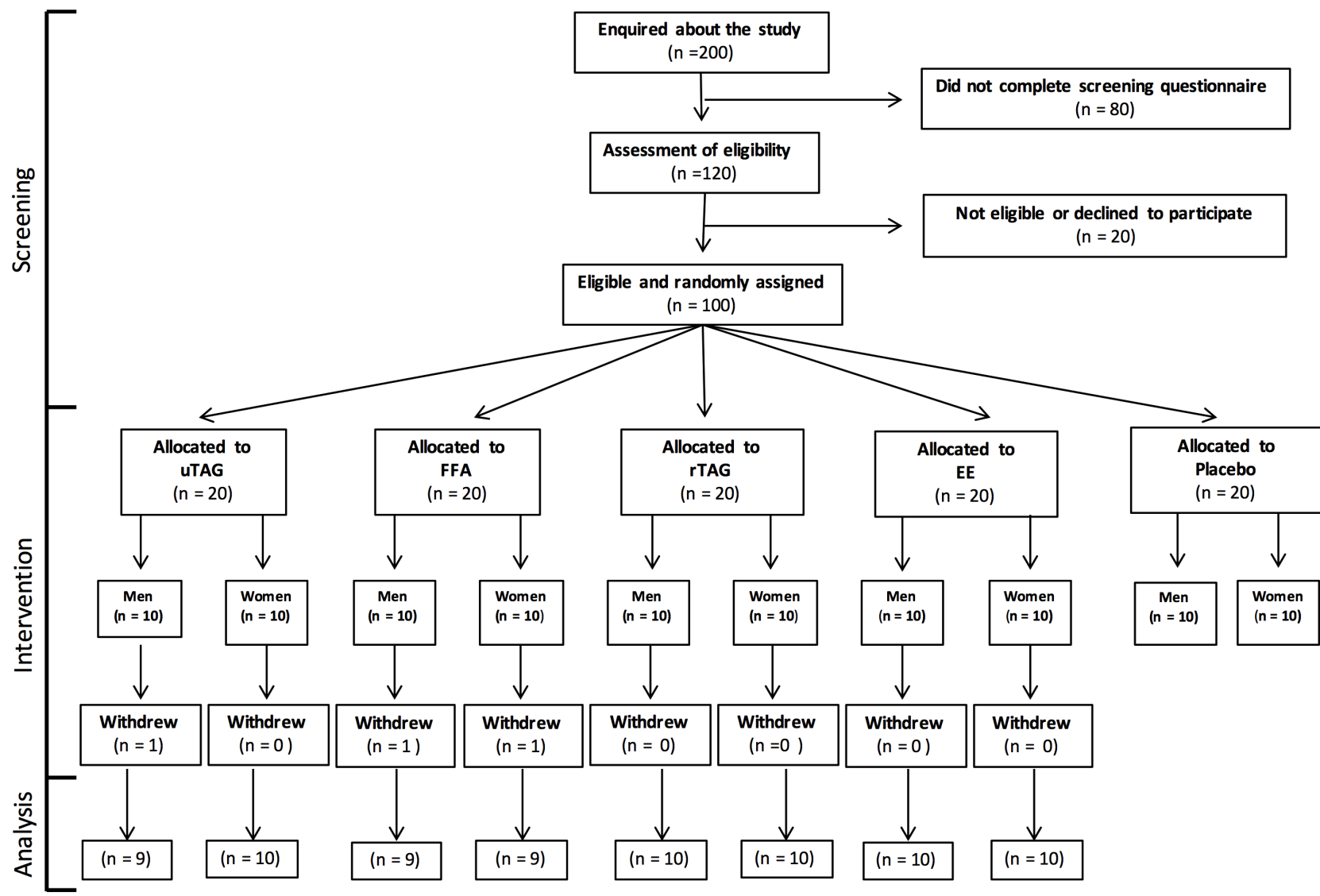|				
Unmodified TAG	1	2	10	0.62
FFA	1	2	9	0.67
rTAG (EC)	<1	2	10	0.97
EE	6	2	10	0.06

EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG(EC), enteric protected re-esterified TAG.

Supplemental Table 7. Relationship between BMI and the iAUC for incorporation of EPA and DHA into individual plasma lipid classes during the postprandial period.

|	Spearman's Correlation							
	Men (*n* 38)				Women (*n* 39)			
	BMI		Age		BMI		Age	
	β	P	β	P	β	P	β	P
iAUC (μmol*week^1*L^{-1})								
EPA								
TAG	-0.42	0.803	0.151	0.365	0.52	0.001	-0.165	0.315
PC	-0.126	0.451	0.261	0.114	0.262	0.107	0.615	0.315
NEFA	-0.267	0.106	0.081	0.629	0.129	0.434	0.043	0.796
DHA								
TAG	-0.134	0.422	0.05	0.764	0.461	0.003	0.039	0.815
PC	-0.031	0.854	0.026	0.875	0.287	0.077	0.133	0.419
NEFA	-0.141	0.398	-0.051	0.73	0.054	0.746	0.217	0.184
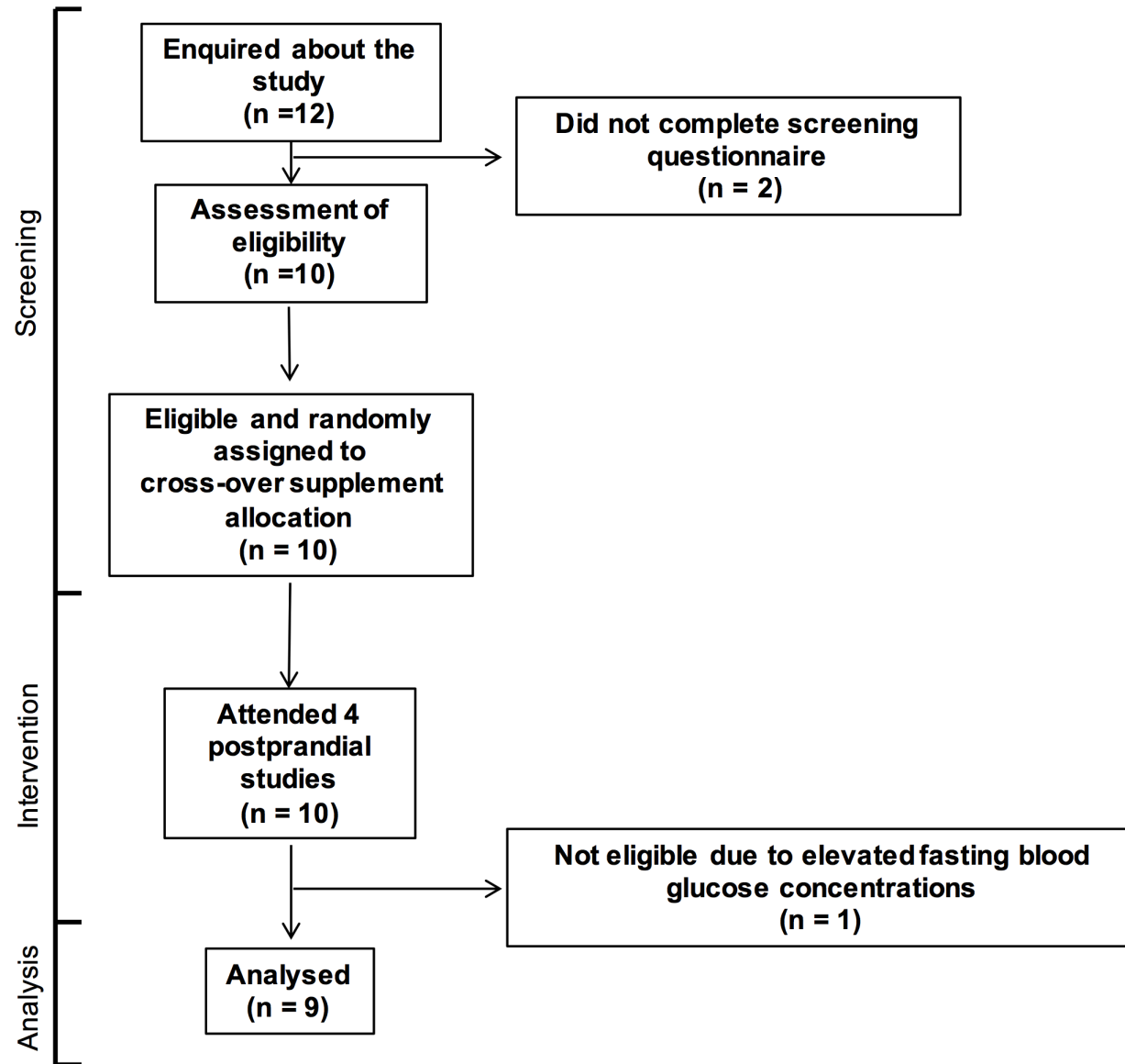
**Supplemental Fig. 1.** CONSORT flow diagram of the postprandial study.

Supplemental Fig. 2. CONSORT flow diagram of the dietary supplementation study. EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG, re-esterified TAG.
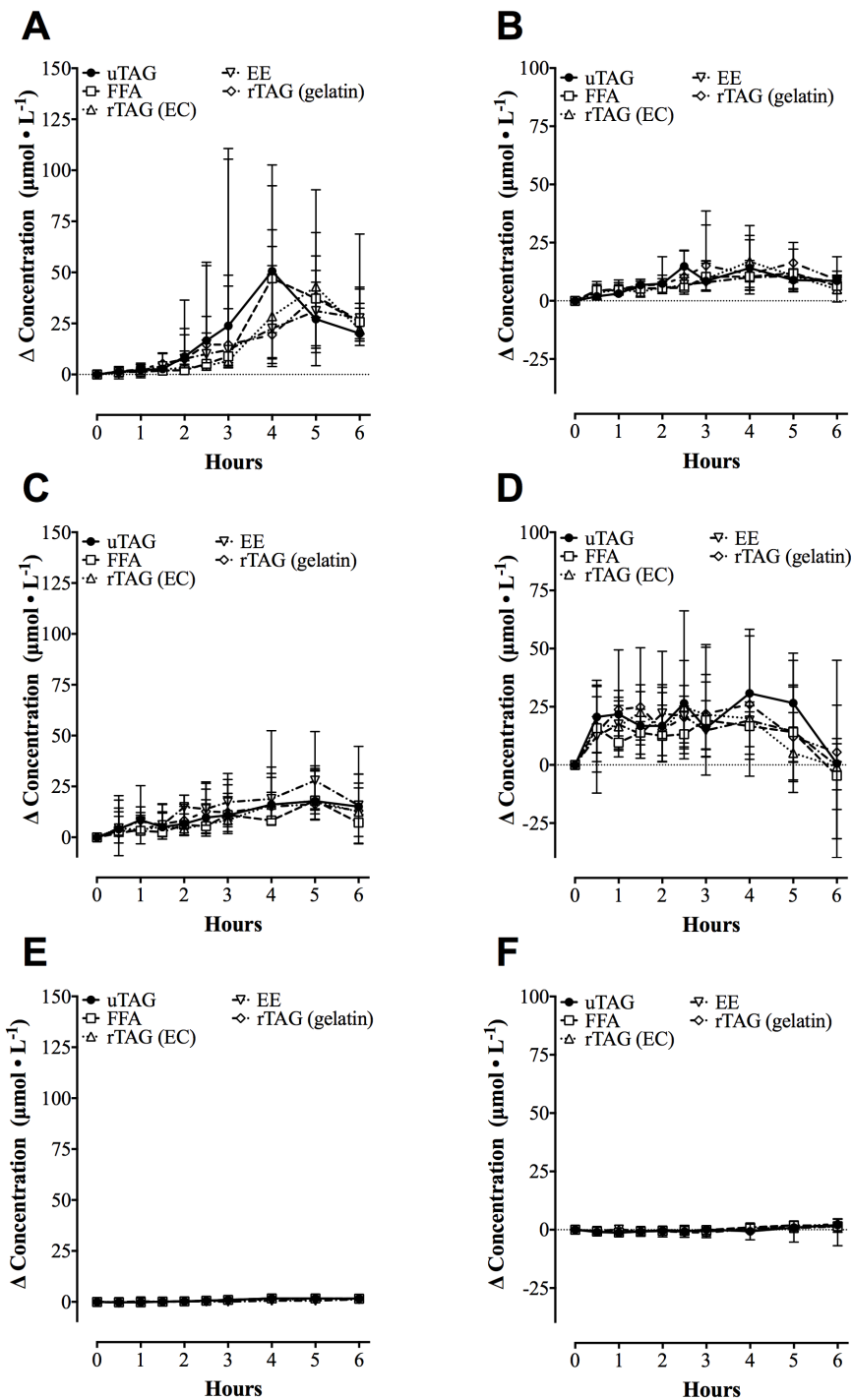
Supplemental Fig. 3. Postprandial incremental change in EPA (A,C,E) and DHA (B,D,F) concentration in plasma TAG (A,B), PC (C,D) and NEFA (E,F). Values are median (50th percentile), and 25% and 75% percentiles (n=9 subjects). EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG(EC), enteric protected re-esterified TAG; rTAG(gelatin), genatin encapsulated tTAG.
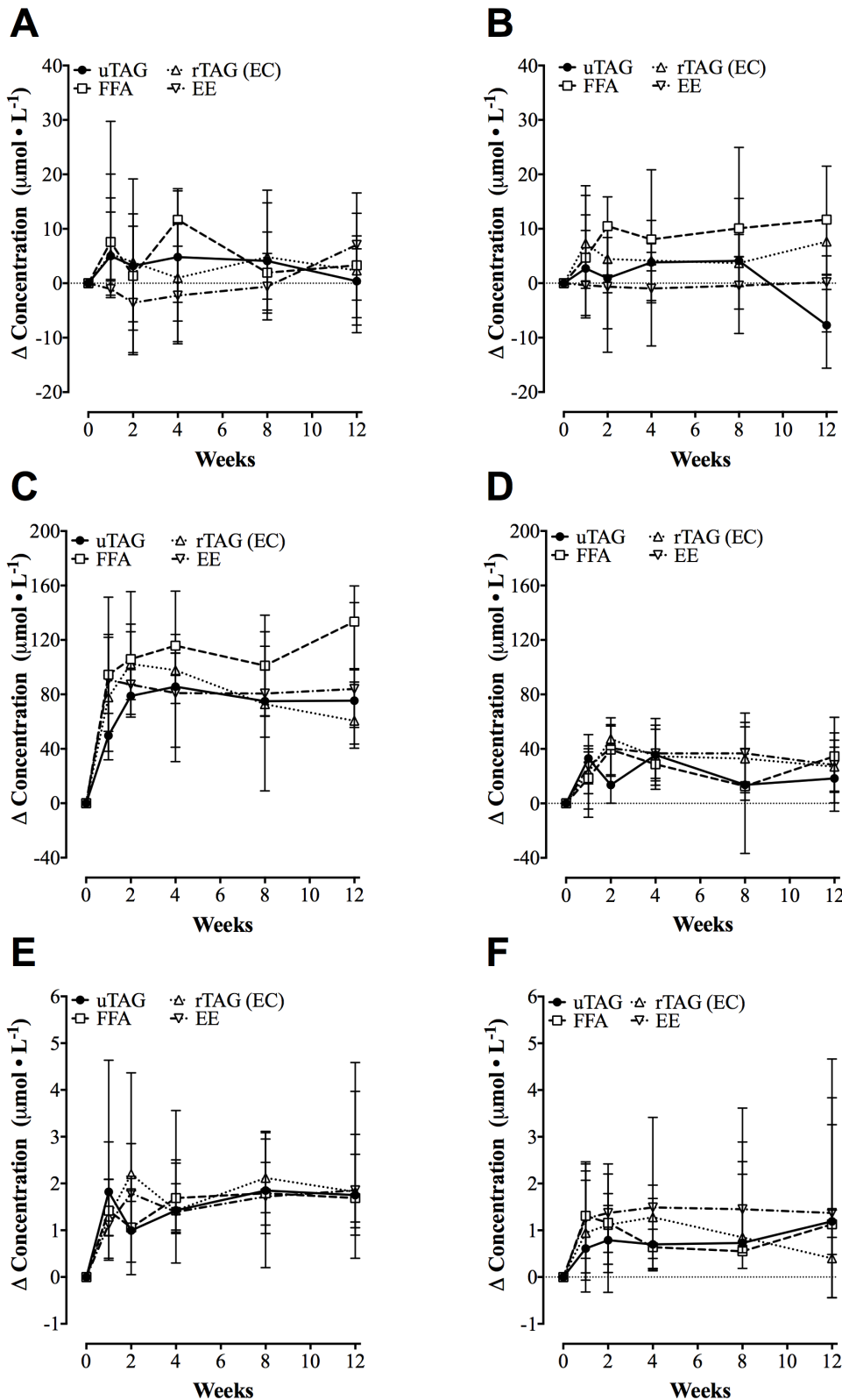
Supplemental Fig. 4. Incremental change in EPA (A,C,E) and DHA (B,D,F) concentration during dietary supplementation in plasma TAG (A,B), PC (C,D) and NEFA (E,F) in men. Values are median (50th percentile), and 25% and 75% percentiles (*n* 9 or 10 subjects, Supplemental Figure 2). EE, ethyl ester; FFA, free fatty acid; uTAG , unmodified triglyceride; rTAG(EC), enteric protected re-esterified TAG; rTAG(gelatin), genatin encapsulated tTAG.
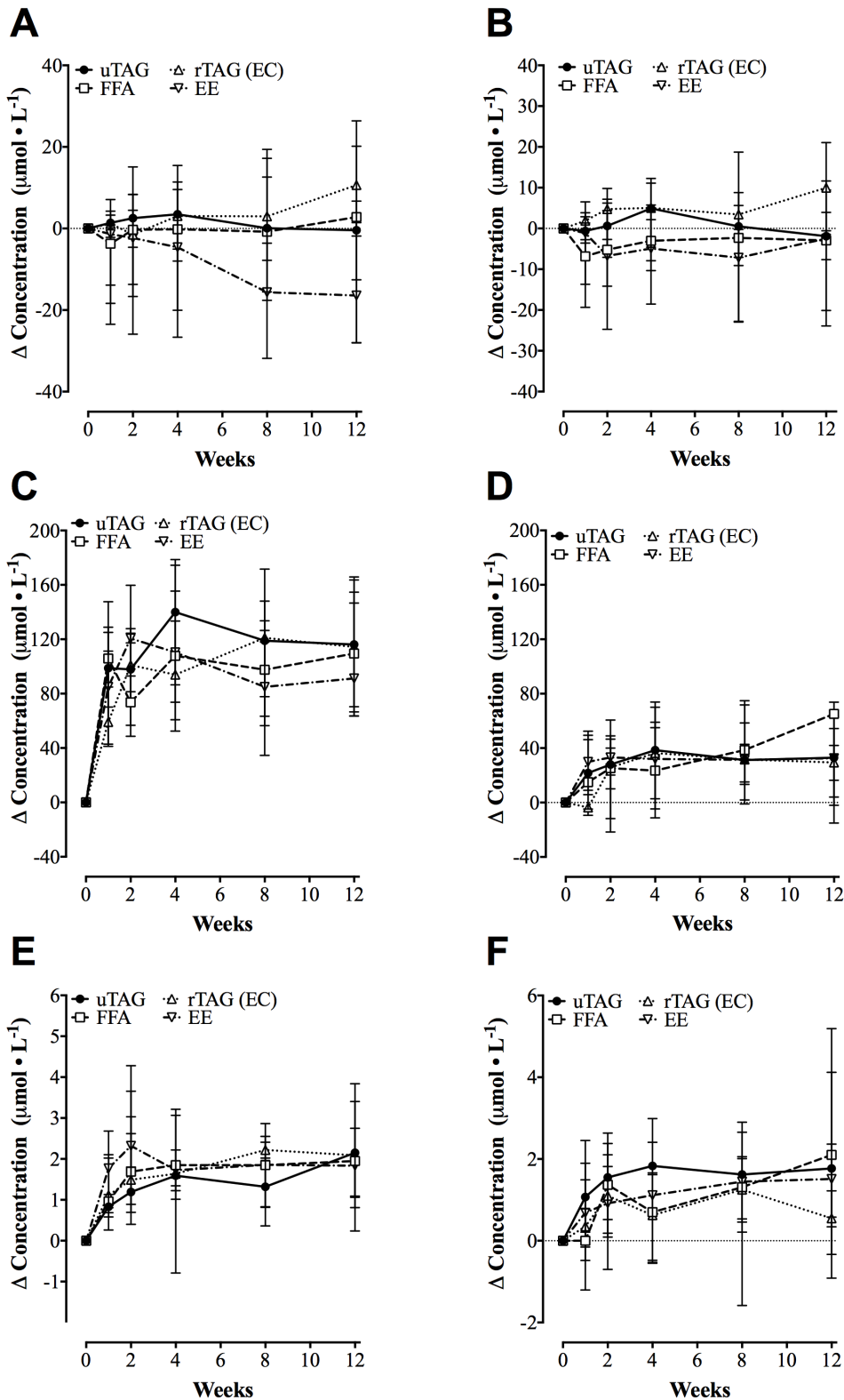
Supplemental Fig. 5. Incremental change in EPA (A,C,E) and DHA (B,D,F) concentration during dietary supplementation in plasma TAG (A,B), PC (C,D) and NEFA (E,F) in women. Values are median (50th percentile), and 25% and 75% percentiles (*n* 9 or 10 subjects, Supplemental Figure 2). EE, ethyl ester; FFA, free fatty acid; uTAG, unmodified triglyceride; rTAG(EC), enteric protected re-esterified TAG; rTAG(gelatin), genatin encapsulated tTAG.