

**Supplementary Table 1.** Mean long chain omega-3 fatty acids (% of total fatty acids) by gender and age group in NHANES 2011-2012

Age group	Variable	Males			Females			P
		N	Mean (SE)	95%CI	N	Mean (SE)	95% CI	
Children, 3-19yrs	EPA	457	0.30 (0.02)	0.26-0.33	488	0.27 (0.01)	0.25-0.30	0.45
	DHA	457	1.05 (0.02)	1.00-1.10	488	1.10 (0.03)	1.04-1.16	0.18
	sum LC omega-3	457	1.75 (0.04)	1.67-1.84	488	1.75 (0.04)	1.66-1.84	0.98
Adults, 20yrs+	EPA	641	0.55 (0.03)	0.50-0.61	675	0.65 (0.03)	0.58-0.73	0.01
	DHA	641	1.27 (0.05)	1.17-1.37	675	1.49 (0.07)	1.34-1.63	<0.001
	sum LC omega-3	641	2.27 (0.07)	2.11-2.42	675	2.58 (0.09)	2.39-2.78	<0.001
Early childhood 3-5yrs	EPA	90	0.26 (0.01)	0.23-0.29	89	0.25 (0.01)	0.23-0.28	0.64
	DHA	90	1.06 (0.04)	0.98-1.14	89	0.97 (0.04)	0.89-1.04	0.73
	sum LC omega-3	90	1.71 (0.06)	1.59-1.83	89	1.60 (0.05)	1.50-1.70	0.15
Middle childhood 6-11yrs	EPA	255	0.31 (0.03)	0.25-0.36	264	0.27 (0.02)	0.23-0.31	0.02
	DHA	255	1.10 (0.05)	1.00-1.21	264	1.08 (0.03)	1.01-1.15	0.63
	sum LC omega-3	255	1.83 (0.08)	1.66-2.00	264	1.73 (0.05)	1.62-1.84	0.17
Adolescents 12-19yrs	EPA	112	0.30 (0.02)	0.25-0.34	135	0.28 (0.02)	0.25-0.31	0.40
	DHA	112	1.01 (0.03)	0.95-1.07	135	1.14 (0.05)	1.04-1.23	0.03
	sum LC omega-3	112	1.71 (0.05)	1.62-1.81	135	1.80 (0.06)	1.67-1.93	0.25
Adults 20-55yrs	EPA	404	0.49 (0.02)	0.46-0.53	414	0.53 (0.03)	0.46-0.60	0.29
	DHA	404	1.18 (0.05)	1.08-1.28	414	1.40 (0.07)	1.25-1.55	0.001
	sum LC omega-3	404	2.11 (0.06)	1.99-2.24	414	2.35 (0.10)	2.13-2.57	0.01
Seniors >55yrs	EPA	237	0.68 (0.06)	0.56-0.80	261	0.88 (0.10)	0.67-1.09	0.11
	DHA	237	1.47 (0.05)	1.36-1.58	261	1.64 (0.08)	1.47-1.80	0.03
	sum LC omega-3	237	2.62 (0.11)	2.39-2.85	261	3.00 (0.15)	2.68-3.32	0.04

p-values represent differences between males and females within a respective life stage.

**Supplementary Table 2.** Mean long chain omega-3 fatty acids (% of total fatty acids) by race/ethnicity in NHANES 2011-2012.

Race/ethnicity	Fatty acid	N	Children, 3-19 yrs			Adults, 20 yrs+			
			Mean (SE)	95%CI	P	N	Mean (SE)	95%CI	P
Mexican American/Hispanic	EPA	312	0.23 (0.01)	0.21-0.26	0.01	293	0.44 (0.02)	0.40-0.47	<0.001
	DHA		1.02 (0.03)	0.97-1.08	0.72		1.26 (0.04)	1.20-1.45	0.29
	sum LC omega-3		1.62 (0.04)	1.54-1.71	0.08		2.10 (0.05)	1.99-2.21	0.01
Non-Hispanic White	EPA	202	0.30 (0.02)	0.26-0.34	Ref	527	0.63 (0.04)	0.55-0.70	Ref
	DHA		1.04 (0.03)	0.98-1.10	Ref		1.32 (0.06)	1.20-1.45	Ref
	sum LC omega-3		1.75 (0.05)	1.65-1.85	Ref		2.40 (0.09)	2.21-2.60	Ref
Non-Hispanic Black	EPA	269	0.29 (0.02)	0.25-0.32	0.67	323	0.55 (0.03)	0.49-0.61	0.08
	DHA		1.20 (0.03)	1.14-1.26	<0.001		1.55 (0.06)	1.43-1.68	0.01
	sum LC omega-3		1.88 (0.05)	1.78-1.97	0.02		2.55 (0.09)	2.36-2.73	0.19
Asian	EPA	98	0.37 (0.02)	0.32-0.42	0.04	167	0.94 (0.07)	0.79-1.10	0.003
	DHA		1.40 (0.05)	1.30-1.51	<0.001		2.13 (0.09)	1.95-2.30	<0.001
	sum LC omega-3		2.18 (0.06)	2.06-2.30	<0.001		3.54 (0.15)	3.22-3.87	<0.001
Other/unknown	EPA	41	0.27 (0.02)	0.22-0.32	0.29	29	0.60 (0.06)	0.47-0.73	0.75
	DHA		1.03 (0.05)	0.95-1.11	0.81		1.59 (0.21)	1.15-2.04	0.22
	sum LC omega-3		1.68 (0.06)	1.56-1.80	0.38		2.67 (0.26)	2.12-3.21	0.35

p-values represent differences between race/ethnicity within a respective life stage. For example, relative to non-Hispanic white children, Asian children had higher EPA (P=0.04).

**Supplementary Table 3.** Mean long chain omega-3 fatty acids (% of total fatty acids) by IOM age groups in NHANES 2011-2012.

Age group	Variable	N	Mean (SE)	95%CI
1-3yrs	EPA	55	0.25 (0.02)	0.20-0.31
	DHA	55	0.98 (0.04)	0.88-1.07
	sum LC omega-3	55	1.60 (0.08)	1.44-1.76
4-8yrs	EPA	382	0.27 (0.01)	0.25-0.28
	DHA	382	1.04 (0.02)	1.00-1.08
	sum LC omega-3	382	1.70 (0.03)	1.65-1.76
9-13yrs	EPA	325	0.29 (0.03)	0.23-0.34
	DHA	325	1.13 (0.04)	1.05-1.20
	sum LC omega-3	325	1.82 (0.07)	1.67-1.96
14-18yrs	EPA	145	0.29 (0.02)	0.26-0.33
	DHA	145	1.05 (0.03)	0.99-1.11
	sum LC omega-3	145	1.74 (0.04)	1.66-1.83
19-30yrs	EPA	258	0.41 (0.03)	0.35-0.48
	DHA	258	1.27 (0.08)	1.11-1.43
	sum LC omega-3	258	2.09 (0.10)	1.88-2.30
31-50yrs	EPA	425	0.52 (0.02)	0.48-0.56
	DHA	425	1.26 (0.05)	1.15-1.36
	sum LC omega-3	425	2.21 (0.07)	2.06-2.36
51-70yrs	EPA	409	0.76 (0.06)	0.63-0.89
	DHA	409	1.49 (0.06)	1.36-1.61
	sum LC omega-3	409	2.71 (0.11)	2.49-2.94
>70yrs	EPA	156	0.80 (0.09)	0.62-0.98
	DHA	156	1.73 (0.11)	1.51-1.96
	sum LC omega-3	156	3.02 (0.20)	2.61-3.43

**Supplementary Table 4.** Fatty acids (% of total fatty acids) measured in NHANES 2011-2012

Fatty acid	Children, 3-19		Adults, 20+	
	Mean (SE)	95% CI	Mean (SE)	95% CI
Capric acid, 10:0	0.02 (0.00)	0.02-0.02	0.03 (0.00)	0.03-0.04
Lauric acid, 12:0	0.10 (0.01)	0.09-0.11	0.15 (0.01)	0.13-0.17
Myristic acid, 14:0	1.10 (0.02)	1.07-1.13	1.09 (0.03)	1.03-1.15
Pentadecanoic acid, 15:0	0.21 (0.00)	0.20-0.22	0.21 (0.00)	0.20-0.22
Palmitic acid, 16:0	24.1 (0.07)	23.9-24.2	23.1 (0.13)	22.8-23.3
Margaric acid, 17:0	0.27 (0.00)	0.26-0.27	0.28 (0.00)	0.27-0.28
Stearic acid, 18:0	5.80 (0.02)	5.76-5.84	6.29 (0.06)	6.16-6.42
Arachidic acid, 20:0	0.20 (0.00)	0.20-0.21	0.22 (0.00)	0.21-0.22
Docosanoic acid, 22:0	0.58 (0.01)	0.56-0.60	0.61 (0.01)	0.59-0.62
Tricosanoic acid, 23:0	0.25 (0.00)	0.25-0.26	0.26 (0.00)	0.26-0.27
Lignoceric acid, 24:0	0.50 (0.01)	0.48-0.51	0.52 (0.01)	0.50-0.53
Myristoleic acid, 14:1n-5	0.07 (0.00)	0.06-0.07	0.07 (0.00)	0.06-0.07
Palmitoleic acid, 16:1n-7	2.03 (0.03)	1.97-2.10	1.56 (0.03)	1.49-1.62
cis-Vaccenic acid, 18:1n-7	1.24 (0.01)	1.21-1.26	1.10 (0.01)	1.08-1.13
Oleic acid, 18:1n-9	18.2 (0.09)	18.0-18.4	17.3 (0.13)	17.0-17.6
Eicosenoic acid, 20:1n-9	0.12 (0.00)	0.12-0.12	0.12 (0.00)	0.12-0.12
Nervonic acid, 24:1n-9	0.74 (0.01)	0.72-0.77	0.74 (0.01)	0.72-0.75
Linoleic acid, 18:2n-6	31.4 (0.12)	31.2-31.7	34.5 (0.28)	34.0-35.1
Alpha-linolenic acid, 18:3n-3	0.73 (0.01)	0.71-0.76	0.71 (0.01)	0.68-0.74
Gamma-linolenic acid, 18:3n-6	0.51 (0.01)	0.49-0.53	0.44 (0.02)	0.41-0.48
Stearidonic acid, 18:4n-3	0.03 (0.00)	0.03-0.03	0.02 (0.00)	0.02-0.02
Eicosadienoic acid, 20:2n-6	0.19 (0.00)	0.19-0.20	0.20 (0.00)	0.19-0.21
Homo-gamma-linolenic acid, 20:3n-6	1.35 (0.01)	1.33-1.37	1.36 (0.03)	1.31-1.42
Eicosatrienoic acid, 20:3n-9	0.07 (0.00)	0.06-0.07	0.06 (0.00)	0.05-0.06
Arachidonic acid, 20:4n-6	7.35 (0.07)	7.20-7.50	6.87 (0.08)	6.71-7.04
Docosatetraenoic acid, 22:4n-6	0.22 (0.00)	0.21-0.23	0.26 (0.00)	0.25-0.27
Docosapentaenoic acid, 22:5n-6	0.17 (0.00)	0.16-0.17	0.22 (0.00)	0.21-0.23

Data shown are weighted means and 95% confidence intervals. Fatty acids shown represent 32 of the 35 fatty acids measured in NHANES. Together with EPA, DHA and DPA (shown in the manuscript tables) were summed to generate total fatty acids to derive the relative concentration (%) of fatty acids.

**Supplementary Table 5.** Prevalence, N (%) of omega-3 fatty acid concentrations below those identified as having cardiovascular benefits by gender and age group in NHANES 2011-2012.

	<b>Adults, 20 yrs+</b>	<b>Adults</b>	<b>Seniors</b>
<b>DHA <math>\geq</math>2.85%, lower risk of atrial fibrillation</b>			
All	61 (2.93)	27 (2.07)	34 (4.65)
Male	19 (1.98)	8 (1.39)	11 (3.30)
Female	42 (3.80)	19 (2.72)	23 (5.70)
<b>Omega-3 Index <math>&gt;</math>6.23%, Low risk</b>			
All	20 (1.0)	10 (0.57)	10 (1.86)
Male	7 (0.34)	4 (0.37)	3 (0.29)
Female	13 (1.60)	6 (0.78)	7 (3.08)
<b>Omega-3 Index 3.11-6.23%, Intermediate risk</b>			
All	138 (10.4)	61 (6.59)	77 (17.9)
Male	48 (7.58)	21 (4.61)	27 (14.3)
Female	90 (12.9)	40 (8.52)	50 (20.7)
<b>Omega-3 Index <math>&lt;</math>3.11%, High risk</b>			
All	1158 (88.7)	747 (92.8)	411 (80.2)
Male	586 (92.1)	379 (95.0)	207 (85.4)
Female	572 (85.6)	368 (90.7)	204 (76.2)

Comparison to long chain omega-3 levels from prior studies were used to approximate 1) the prevalence of participants with omega-3 levels equivalent to omega-3 dietary intake recommendations by the DGA (24), 2) the lower range of the tertiles of serum DHA associated with lower risk of atrial fibrillation (31), and 3) cardiovascular risk categories defined by the Omega-3 Index (32,33).