

Supplementary Data

Polyunsaturated Fatty Acids and Reduced Odds of MCI: The Mayo Clinic Study of Aging

Rosebud O. Roberts^{a,*}, James R. Cerhan^a, Yonas E. Geda^{a,c}, David S. Knopman^d, Ruth H. Cha^b, Teresa J.H. Christianson^b, V. Shane Pankratz^b, Robert J. Ivnik^c, Helen M. O'Connor^e and Ronald C. Petersen^{a,d}

^a*Division of Epidemiology, Department of Health Sciences Research, Mayo Clinic, Rochester, MN, USA*

^b*Division of Biomedical Statistics and Informatics, Department of Health Sciences Research, Mayo Clinic, Rochester, MN, USA*

^c*Department of Psychiatry and Psychology, Mayo Clinic, Rochester, MN, USA*

^d*Department of Neurology, Mayo Clinic, Rochester, MN, USA*

^e*Office for Human Research Protection, Mayo Clinic, Rochester, MN, USA*

*Correspondence to: Rosebud O. Roberts, MB ChB, MS, Division of Epidemiology, Department of Health Sciences Research, Mayo Clinic, 200 First Street SW, Rochester, Minnesota 55905, USA. Tel.: +1 507 284 5656; Fax: +1 507 284 1516; E-mail: roberts.rosebud@mayo.edu.

Supplementary Table 1
Association of tertiles of PUFA, MUFA, and SFA with MCI*

Variable	Controls <i>n</i> = 1,070 <i>n</i> (%)	MCI cases <i>n</i> = 163 <i>n</i> (%)	MCI			
			OR (95% CI) [†]	<i>p</i>	<i>p</i> for trend	<i>p</i> for trend
PUFA, g/day						
< 9.06	342 (32.0)	69 (42.3)	1.00 (reference)	–		–
9.06–11.49	358 (33.5)	54 (33.1)	0.68 (0.45–1.02)	0.060		0.11
> 11.49	370 (34.6)	40 (24.5)	0.43 (0.28–0.68)	0.0003	0.001	0.0001
(MUFA+PUFA):SFA ratio						0.0005
< 1.42	346 (32.3)	65 (39.9)	1.00 (reference)	–		–
1.42–1.71	353 (33.0)	59 (36.2)	0.93 (0.63–1.38)	0.71		0.97
> 1.71	371 (34.7)	39 (23.9)	0.56 (0.37–0.87)	0.010	0.025	0.015
MUFA, g/day						0.023
< 18.52	356 (33.3)	55 (33.7)	1.00 (reference)	–		–
18.52–23.29	358 (33.5)	54 (33.1)	0.79 (0.51–1.22)	0.28		0.17
> 23.29	356 (33.3)	54 (33.1)	0.68 (0.42–1.12)	0.13	0.30	0.027
MUFA:SFA ratio						0.09
< 0.96	353 (33.0)	58 (35.6)	1.00 (reference)	–		–
0.96–1.12	358 (33.5)	54 (33.1)	0.92 (0.61–1.39)	0.70		0.95
> 1.12	359 (33.6)	51 (31.3)	0.83 (0.55–1.26)	0.39	0.69	0.43
Trans-fatty acids, g/day						0.68
< 0.56	372 (34.8)	39 (23.9)	1.00 (reference)	–		–
0.56–0.98	343 (32.1)	69 (42.3)	1.69 (1.10–2.61)	0.017		0.046
> 0.98	355 (33.2)	55 (33.7)	1.16 (0.74–1.83)	0.518	0.035	0.44
Total fat, g/day						0.12
< 55.53	352 (32.9)	59 (36.2)	1.00 (reference)	–		–
55.53–68.17	363 (33.9)	49 (30.1)	0.71 (0.46–1.10)	0.13		0.21
> 68.17	355 (33.2)	55 (33.7)	0.65 (0.40–1.06)	0.09	0.18	0.043
Cholesterol, g/day						0.13
< 210.22	349 (32.6)	62 (38.0)	1.00 (reference)	–		–
210.22–324.58	364 (34.0)	48 (29.4)	0.69 (0.45–1.05)	0.08		0.25
> 324.58	357 (33.4)	53 (32.5)	0.72 (0.47–1.11)	0.13	0.16	0.28
SFA, g/day						0.43
< 17.91	363 (33.9)	48 (29.4)	1.00 (reference)	–		–
17.91–23.05	360 (33.6)	52 (31.9)	1.00 (0.64–1.54)	0.98		0.85
> 23.05	347 (32.4)	63 (38.7)	1.16 (0.73–1.85)	0.52	0.73	0.96

*95% CI = 95% confidence interval; MCI = mild cognitive impairment; MUFA = monounsaturated fatty acids; OR = odds ratio; PUFA = polyunsaturated fatty acids; SFA = saturated fatty acids.

[†] Adjusted for age, gender, number of years of education, and total caloric intake.

[‡] Additional adjustment for body mass index, ApoE ε4 allele, stroke, coronary heart disease, diabetes, and depressive symptoms.

Supplementary Table 2
Association of tertiles of omega-6, omega-3, linoleic acid, and linolenic acid with MCI*

Variable	Non-MCI		MCI		MCI			
	n = 1,070		n = 163		OR (95% CI) [†]	p	p for trend	p for trend
Omega-6 fatty acids, g/day								
< 7.80	342 (32.0)	69 (42.3)	1.00 (reference)	–	1.00 (reference)	–		
7.80–10.09	359 (33.6)	53 (32.5)	0.66 (0.44–0.99)	0.047	0.68 (0.43–1.06)	0.09		
> 10.09	369 (34.5)	41 (25.2)	0.44 (0.28–0.69)	0.0003	0.38 (0.23–0.62)	0.0001	0.0002	0.0007
Omega-3 fatty acids, g/day								
< 0.84	343 (32.1)	68 (41.7)	1.00 (reference)	–	1.00 (reference)	–		
0.84–1.05	364 (34.0)	48 (29.4)	0.61 (0.40–0.93)	0.020	0.56 (0.36–0.89)	0.014		
> 1.05	363 (33.9)	47 (28.8)	0.61 (0.40–0.94)	0.025	0.50 (0.31–0.81)	0.005	0.028	0.008
Linoleic acid, g/day								
< 7.65	342 (32.0)	69 (42.3)	1.00 (reference)	–	1.00 (reference)	–		
7.65–9.94	357 (33.4)	55 (33.7)	0.69 (0.46–1.04)	0.08	0.71 (0.45–1.10)	0.13		
> 9.94	371 (34.7)	39 (23.9)	0.41 (0.26–0.65)	0.0001	0.37 (0.22–0.61)	< 0.0001	0.0006	0.0005
Linolenic acid, g/day								
< 0.76	346 (32.3)	65 (39.9)	1.00 (reference)	–	1.00 (reference)	–		
0.76–0.93	357 (33.4)	55 (33.7)	0.78 (0.52–1.17)	0.23	0.75 (0.48–1.17)	0.21		
> 0.93	367 (34.3)	43 (26.4)	0.57 (0.37–0.88)	0.012	0.47 (0.29–0.77)	0.003	0.043	0.011
Fish intake, g/day								
< 8.74	353 (33.0)	58 (35.6)	1.00 (reference)	–	1.00 (reference)	–		
8.74–21.20	354 (33.1)	58 (35.6)	1.14 (0.76–1.71)	0.54	0.96 (0.61–1.50)	0.84		
> 21.20	363 (33.9)	47 (28.8)	1.03 (0.67–1.58)	0.91	0.97 (0.60–1.55)	0.88	0.81	0.98
Omega-6:Omega-3 ratio								
< 8.68	357 (33.4)	54 (33.1)	1.00 (reference)	–	1.00 (reference)	–		
8.68–10.49	358 (33.5)	54 (33.1)	0.93 (0.61–1.40)	0.71	0.97 (0.62–1.53)	0.90		
> 10.49	355 (33.2)	55 (33.7)	0.84 (0.55–1.28)	0.42	0.74 (0.46–1.18)	0.21	0.72	0.39

*95% CI = 95% confidence interval; MCI = mild cognitive impairment; OR = odds ratio.

[†] Adjusted for age, gender, number of years of education, and total caloric intake.

[‡] Additional adjustment for body mass index, ApoE ε4 allele, stroke, coronary heart disease, diabetes, and depressive symptoms.