

Supplementary Table S1. Bivariate and partial correlations between plasma fatty acids profile and bone mineral density at either the lumbar spine or the hips.

		BMD L2- L4 (g/cm2)	BMD L2 (g/cm2)	BMD L3 (g/cm2)	BMD L4 (g/cm2)	BMD trochanter (g/cm2)	BMD Femoral neck (g/cm2)
C8:0 Caprylic acid	Spearman Rho	-0.061	-0.057	-0.075	-0.051	-0.054	0.005
	<i>p</i> -Value	0.294	0.32	0.193	0.38	0.351	0.929
C10:0 Decanoic acid	Spearman Rho	-0.119	-0.115	-0.105	-0.113	-0.103	-0.154
	<i>p</i> -Value	0.039	0.046	0.068	0.05	0.074	0.007
	Adjusted coefficient *	-0.094	-0.097		-0.084		-0.115
	<i>p</i> -Value	0.123	0.111		0.171		0.060
C12:0 Lauric acid	Spearman Rho	-0.094	-0.077	-0.093	-0.1	-0.078	-0.125
	<i>p</i> -Value	0.102	0.185	0.108	0.084	0.179	0.031
	Adjusted coefficient *						-0.144
	<i>p</i> -Value						0.018
C14:0 Myristic acid	Spearman Rho	0.018	-0.008	0.02	0.035	0.008	0.052
	<i>p</i> -Value	0.753	0.89	0.732	0.545	0.891	0.366
C16:0 Palmitic acid	Spearman Rho	0.051	0.034	0.044	0.062	0.049	0.075
	<i>p</i> -Value	0.382	0.555	0.448	0.286	0.399	0.194
C18:0 Stearic acid	Spearman Rho	0.039	0.026	0.036	0.037	0.033	0.047
	<i>p</i> -Value	0.503	0.657	0.531	0.528	0.564	0.413
C20:0 Arachidic acid	Spearman Rho	-0.039	-0.037	-0.042	-0.043	-0.021	0.042
	<i>p</i> -Value	0.501	0.527	0.469	0.461	0.718	0.469
C22:0 Docosanoic acid	Spearman Rho	0.05	0.057	0.055	0.028	-0.002	-0.001
	<i>p</i> -Value	0.387	0.326	0.343	0.626	0.978	0.98
C24:0 Lignoceric acid	Spearman Rho	0.004	0.025	-0.008	-0.001	-0.048	-0.075
	<i>p</i> -Value	0.945	0.663	0.884	0.984	0.403	0.194
C16:1 Palmitoleic acid	Spearman Rho	-0.061	-0.064	-0.052	-0.049	-0.044	-0.029
	<i>p</i> -Value	0.292	0.269	0.365	0.399	0.449	0.619
C18:1 cis (n9) Oleic acid	Spearman Rho	-0.104	-0.111	-0.097	-0.08	-0.099	-0.092
	<i>p</i> -Value	0.071	0.055	0.093	0.165	0.087	0.113
C22:1 (n9) Erucic acid	Spearman Rho	-0.021	-0.025	-0.023	-0.017	-0.043	-0.122
	<i>p</i> -Value	0.711	0.661	0.685	0.766	0.46	0.035
	Adjusted coefficient *						-0.114

		<i>p</i> -Value						0.063
C18:3	(n3)							
Linolenic acid (ALA)	acid	Spearman Rho	0.119	0.109	0.106	0.119	0.026	0.018
		<i>p</i> -Value	0.039	0.058	0.066	0.039	0.654	0.75
		<i>Adjusted coefficient</i>						
		*	0.111				0.123	
		<i>p</i> -Value	0.069				0.044	
C20:5	(n3)							
Eicosapentenoic acid (EPA)	acid	Spearman Rho	-0.036	-0.046	-0.042	-0.015	-0.009	0.008
		<i>p</i> -Value	0.534	0.428	0.468	0.79	0.875	0.892
C22:6	(n3)							
Docosahexenoic acid (DHA)	acid	Spearman Rho	0.133	0.128	0.114	0.147	0.083	0.152
		<i>p</i> -Value	0.021	0.026	0.049	0.011	0.151	0.008
		<i>Adjusted coefficient</i>						
		*	0.135	0.148	0.122	0.136	0.132	
		<i>p</i> -Value	0.026	0.015	0.045	0.026	0.031	
C18:2 (n6)	Linoleic acid (LA)	Spearman Rho	-0.014	0.017	-0.018	-0.029	0.014	-0.046
		<i>p</i> -Value	0.805	0.773	0.76	0.613	0.809	0.424
C20:4	(n6)							
Arachidonic acid (AA)	acid	Spearman Rho	0.054	0.064	0.088	0.015	0.031	0.018
		<i>p</i> -Value	0.355	0.271	0.13	0.802	0.595	0.755

* Partial non parametric correlations adjusted by, age, years since menopause, BMI and vitamin D, calcium and energy intakes.

Supplementary Table S2. Logistic regression of fatty acids associated with low BMD ($T \leq -1$ score).

	Univariate			Multivariate		
	OR	95% CI	p-Value	OR	95% CI	p-Value
C8:0 Caprylic acid	2.750	0.023-322.722	0.667			
C10:0 Decanoic acid	2.958	1.131-7.736	0.027	2.412	0.881-6.598	0.087
C12:0 Lauric acid	1.542	0.826-2.878	0.174			
C14:0 Myristic acid	0.851	0.296-2.448	0.764			
C16:0 Palmitic acid	0.925	0.844-1.013	0.093			
C18:0 Stearic acid	0.978	0.922-1.038	0.465			
C20:0 Arachidic acid	1.166	0.894-1.522	0.257			
C22:0 Docosanoic acid	0.581	0.104-3.243	0.536			
C24:0 Lignoceric acid	1.400	0.226-8.677	0.718			
C16:1 Palmitoleic acid	1.100	0.559-2.165	0.782			
C18:1 cis (n9) Oleic acid	1.083	0.996-1.177	0.061			
C22:1 (n9) Erucic acid	0.054	0.000-1823.809	0.584			
C18:3 (n3) Linolenic acid (ALA)	0.742	0.524-1.050	0.092			
C20:5 (n3) Eicosapentenoic acid (EPA)	1.612	0.623-4.169	0.325			
C22:6 (n3) Docosahexenoic acid (DHA)	0.757	0.561-1.023	0.070			
C18:2 (n6) Linoleic acid (LA)	1.044	0.970-1.125	0.250			
C20:4 (n6) Arachidonic acid (AA)	0.902	0.744-1.050	0.184			

OR: Odds ratio; CI: Confidence interval

Multivariate model adjusted by: Age (years), Years since menopause (years) BMI (kg/m²), Vitamin D (mcrg/day), Calcium intake (mg/day), Energy (kcal/day)