

## **Association between dietary intake of saturated fatty acid subgroups and breast cancer risk**

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Supplemental Information including Supplemental Table 1-3

## Supplemental Information

**Supplemental Table 1** Distribution of individual saturated fatty acid intake between cases and controls

	Cases (n=1661)			Controls (n=1674)			<i>P</i> <sub>value</sub> <sup>b</sup>
	<i>P</i> <sub>25</sub>	<i>P</i> <sub>50</sub>	<i>P</i> <sub>75</sub>	<i>P</i> <sub>25</sub>	<i>P</i> <sub>50</sub>	<i>P</i> <sub>75</sub>	
Caproic acid (C6:0) (g/day) <sup>a</sup>	0.0002	0.0027	0.0136	0.0002	0.0041	0.0203	0.001
Caprylic acid (C8:0) (g/day) <sup>a</sup>	0.0024	0.0082	0.0252	0.0027	0.0094	0.0283	0.094
Capric acid (C10:0) (g/day) <sup>a</sup>	0.0084	0.0215	0.0558	0.0092	0.0257	0.0746	<0.001
Undecanoic acid (C11:0) (g/day) <sup>a</sup>	0.0005	0.0008	0.0015	0.0005	0.0009	0.0017	<0.001
Lauric acid (C12:0) (g/day) <sup>a</sup>	0.0732	0.1406	0.2508	0.0740	0.1475	0.2750	0.155
Tridecanoic acid (C13:0) (g/day) <sup>a</sup>	0.0016	0.0028	0.0051	0.0019	0.0033	0.0059	<0.001
Myristic acid (C14:0) (g/day) <sup>a</sup>	0.3324	0.5116	0.7793	0.3550	0.5341	0.8436	0.002
Pentadecanoic acid (C15:0) (g/day) <sup>a</sup>	0.0402	0.0665	0.1148	0.0467	0.0802	0.1283	<0.001
Palmitic acid (C16:0) (g/day) <sup>a</sup>	4.8765	6.7132	9.0240	5.0817	6.7690	8.9470	0.462
Heptadecanoic acid (C17:0) (g/day) <sup>a</sup>	0.0608	0.1004	0.1740	0.0654	0.1059	0.1813	0.133
Stearic acid (C18:0) (g/day) <sup>a</sup>	1.9158	2.7226	3.8220	1.9460	2.7185	3.7482	0.997
Nonadecanoic acid (C19:0) (g/day) <sup>a</sup>	0.0055	0.0085	0.0128	0.0062	0.0095	0.0136	<0.001
Arachidic acid (C20:0) (g/day) <sup>a</sup>	0.0380	0.0561	0.0834	0.0397	0.0574	0.0815	0.452
Behenic acid (C22:0) (g/day) <sup>a</sup>	0.0126	0.0178	0.0249	0.0138	0.0192	0.0270	<0.001

<sup>a</sup> Dietary fatty acid intake was adjusted for total energy using the residual method.

<sup>b</sup> Wilcoxon rank-sum test was used for the comparison of dietary fatty acid intake by median between cases and controls.

## Supplemental Information

**Supplemental Table 2** Spearman correlations between individuals and subgroups of SFA intake and some food groups among controls ( $n=1674$ )

	Cereals	Soybeans and nuts	Vegetables	Fruits	Red meat and processed meat	White meat	Eggs	Dairy products
Caproic acid (C6:0)	-0.05*	0.24**	0.15**	0.30**	-0.01	0.14**	0.18**	0.94**
Caprylic acid (C8:0)	-0.04	0.26**	0.15**	0.34**	0.00	0.17**	0.22**	0.86**
Capric acid (C10:0)	-0.06*	0.31**	0.18**	0.34**	0.04	0.17**	0.20**	0.92**
Undecanoic acid (C11:0)	-0.08**	0.19**	0.08**	0.11**	0.05*	0.25**	0.85**	0.22**
Lauric acid (C12:0)	0.06*	0.23**	0.16**	0.32**	0.17**	0.19**	0.21**	0.79**
Tridecanoic acid (C13:0)	-0.04	0.26**	0.26**	0.25**	0.04	0.16**	0.61**	0.69**
Myristic acid (C14:0)	-0.01	0.24**	0.17**	0.30**	0.36**	0.31**	0.33**	0.76**
Pentadecanoic acid (C15:0)	-0.08**	0.28**	0.17**	0.28**	0.09**	0.30**	0.69**	0.66**
Palmitic acid (C16:0)	0.15**	0.24**	0.17**	0.18**	0.68**	0.35**	0.29**	0.35**
Heptadecanoic acid (C17:0)	0.00	0.20**	0.10**	0.14**	0.24**	0.22**	0.83**	0.28**
Stearic acid (C18:0)	0.11**	0.20**	0.12**	0.15**	0.72**	0.30**	0.28**	0.29**
Nonadecanoic acid (C19:0)	0.04	0.33**	0.23**	0.27**	0.15**	0.58**	0.51**	0.34**
Arachidic acid (C20:0)	0.12**	0.28**	0.22**	0.24**	0.36**	0.50**	0.22**	0.27**
Behenic acid (C22:0)	0.07**	0.50**	0.48**	0.42**	0.06*	0.40**	0.28**	0.47**
Medium-chain SFAs	0.03	0.26**	0.16**	0.33**	0.13**	0.19**	0.22**	0.86**
Long even-chain SFAs	0.13**	0.23**	0.16**	0.19**	0.68**	0.34**	0.29**	0.38**
Long odd-chain SFAs	-0.03	0.25**	0.15**	0.22**	0.19**	0.29**	0.80**	0.49**
Very long-chain SFAs	0.12**	0.35**	0.29**	0.30**	0.32**	0.50**	0.25**	0.34**

\* Correlation coefficients were statistically significant for  $P < 0.05$ .

\*\* Correlation coefficients were statistically significant for  $P < 0.001$ .

## Supplemental Information

**Supplemental Table 3** Odds ratios (ORs) and 95% confidence intervals (95% CIs) of breast cancer according to quartiles of individual saturated fatty acid intake

	Q1	Q2	Q3	Q4	$P_{\text{trend}}^b$
<b>Caproic acid (C6:0)</b>					
Cases/Controls	430/418	513/419	392/419	326/418	
Crude OR (95% CI)	1	1.19 (0.99-1.43)	0.91 (0.75-1.10)	0.76 (0.62-0.92)	0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	1.16 (0.95-1.43)	0.89 (0.72-1.11)	0.72 (0.57-0.90)	0.001
<b>Caprylic acid (C8:0)</b>					
Cases/Controls	450/418	427/419	416/419	368/418	
Crude OR (95% CI)	1	0.95 (0.78-1.14)	0.92 (0.76-1.12)	0.82 (0.67-0.99)	0.045
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.98 (0.79-1.20)	0.91 (0.74-1.14)	0.80 (0.64-1.01)	0.053
<b>Capric acid (C10:0)</b>					
Cases/Controls	450/418	465/419	418/419	328/418	
Crude OR (95% CI)	1	1.03 (0.85-1.24)	0.93 (0.77-1.12)	0.73 (0.60-0.89)	0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	1.04 (0.84-1.28)	0.96 (0.77-1.20)	0.71 (0.56-0.90)	0.004
<b>Undecanoic acid (C11:0)</b>					
Cases/Controls	489/419	454/424	364/413	354/418	
Crude OR (95% CI)	1	0.92 (0.76-1.10)	0.76 (0.62-0.92)	0.73 (0.60-0.88)	<0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.98 (0.80-1.21)	0.79 (0.64-0.97)	0.78 (0.62-0.97)	0.005
<b>Lauric acid (C12:0)</b>					
Cases/Controls	418/418	445/419	424/419	374/418	
Crude OR (95% CI)	1	1.06 (0.88-1.28)	1.01 (0.84-1.23)	0.89 (0.74-1.09)	0.230
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.99 (0.80-1.23)	0.96 (0.77-1.20)	0.82 (0.65-1.05)	0.112
<b>Tridecanoic acid (C13:0)</b>					
Cases/Controls	523/418	438/419	373/419	327/418	
Crude OR (95% CI)	1	0.84 (0.69-1.01)	0.71 (0.59-0.86)	0.63 (0.52-0.76)	<0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.86 (0.70-1.05)	0.74 (0.60-0.92)	0.62 (0.49-0.77)	<0.001
<b>Myristic acid (C14:0)</b>					
Cases/Controls	469/418	406/419	449/419	337/418	
Crude OR (95% CI)	1	0.86 (0.71-1.04)	0.96 (0.79-1.15)	0.72 (0.59-0.87)	0.006
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.82 (0.65-1.05)	0.82 (0.63-1.07)	0.60 (0.45-0.79)	0.001
<b>Pentadecanoic acid (C15:0)</b>					
Cases/Controls	508/418	484/419	347/419	332/418	
Crude OR (95% CI)	1	0.95 (0.79-1.14)	0.68 (0.56-0.83)	0.63 (0.52-0.77)	<0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.95 (0.77-1.16)	0.67 (0.54-0.84)	0.59 (0.47-0.75)	<0.001
<b>Palmitic acid (C16:0)</b>					
Cases/Controls	457/418	382/419	397/419	425/418	
Crude OR (95% CI)	1	0.83 (0.69-1.01)	0.87 (0.72-1.05)	0.93 (0.77-1.12)	0.534
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.59 (0.42-0.83)	0.57 (0.38-0.88)	0.57 (0.34-0.96)	0.062
<b>Heptadecanoic acid (C17:0)</b>					
Cases/Controls	457/418	414/419	400/419	390/418	
Crude OR (95% CI)	1	0.90 (0.75-1.09)	0.87 (0.72-1.06)	0.85 (0.70-1.03)	0.096
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.91 (0.74-1.13)	0.82 (0.66-1.03)	0.88 (0.69-1.12)	0.211
<b>Stearic acid (C18:0)</b>					

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Cases/Controls	426/418	398/419	404/419	433/418	
Crude OR (95% CI)	1	0.93 (0.77-1.13)	0.95 (0.78-1.15)	1.02 (0.84-1.23)	0.835
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.97 (0.70-1.33)	1.04 (0.69-1.57)	1.05 (0.64-1.74)	0.778
Nonadecanoic acid (C19:0)					
Cases/Controls	510/418	417/419	365/419	369/418	
Crude OR (95% CI)	1	0.82 (0.68-0.98)	0.71 (0.59-0.86)	0.72 (0.60-0.88)	<0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.83 (0.67-1.03)	0.72 (0.57-0.90)	0.64 (0.50-0.82)	<0.001
Arachidic acid (C20:0)					
Cases/Controls	459/418	394/419	374/419	434/418	
Crude OR (95% CI)	1	0.86 (0.71-1.04)	0.81 (0.67-0.99)	0.95 (0.78-1.14)	0.467
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.81 (0.64-1.03)	0.74 (0.56-0.96)	0.85 (0.62-1.17)	0.219
Behenic acid (C22:0)					
Cases/Controls	531/418	400/419	392/419	338/418	
Crude OR (95% CI)	1	0.75 (0.62-0.91)	0.74 (0.61-0.89)	0.64 (0.53-0.77)	<0.001
Adjusted OR 2 (95% CI) <sup>a</sup>	1	0.71 (0.57-0.89)	0.65 (0.51-0.83)	0.48 (0.36-0.65)	<0.001

<sup>a</sup> Adjusted for BMI, MET, age of menarche, number of live births, educational level, income, passive smoker, regular drinker, breastfeeding history, ever used oral contraceptives, family history of breast cancer in first-degree relatives, history of benign breast diseases, dietary intakes of monounsaturated fatty acid and polyunsaturated fatty acid which were adjusted for total energy using the residual method.

<sup>b</sup> Linear trends for ORs were performed by entering categorical variables as continuous variables.