

**Suppl Table 1.** Distribution of energy intake from specific groups of ultra-processed foods among cases and controls (including t-test comparison)

Variable	Cas				Control				Paired ttest* On continuous variable
	Mean	Median	5th Pctl	95th Pctl	Mean	Median	5th Pctl	95th Pctl	
UPF	837.2	729.4	242.6	1706.1	826.7	640.9	187.8	1958.5	0.05
Carbonated beverages	129.4	25	0	768.1	154.4	23.2	0	818.2	0.45
Fruit juice beverages	14.1	5.5	0	51.9	9.2	2	0	37.4	<.0001
Yogurt and dairy-based drinks	36	7	0	208.3	35.9	4.5	0	206.9	0.03
Distilled alcoholic beverages	5.7	0	0	25.4	6.7	0	0	30.8	0.61
Industrial breads	53	41.7	0	158.3	42.5	20.5	0	124.4	<.0001
Breakfast cereals	54.9	34.1	0	176.1	54.6	17.1	0	216.2	<.0001
Confectionery	55	23.1	0	190.6	54.6	18.1	0	204	0.06
Packaged sweet snacks	27.8	10.7	0	96.1	22.5	5	0	96.1	<.0001
Packaged savory snacks	52.1	35.7	3.6	163	46.4	31	0	132.5	0.001
Cakes and desserts	135.9	103	10.8	362.9	129.5	85.1	9.1	380	0.10
Sausage and reconstituted meat	93.2	68.4	11.7	241.2	108.9	72.1	16	325	0.04
Ready-to-eat/heat food	151.9	126.1	26.6	360.7	134.9	101.7	20	334.2	0.12
Industrial cheese and cheese s	9.1	3.4	0	40.3	8.8	3.4	0	40.3	0.10

Variable	Cas				Control				Paired ttest* On continuous variable
	Mean	Median	5th Pctl	95th Pctl	Mean	Median	5th Pctl	95th Pctl	
Margarine and butter substitut	14.3	4.8	0	66.6	13.4	2.4	0	58.8	0.006
Other NOVA4 food	4.9	2.6	0	18.1	4.4	2	0	14.5	0.03

(\*): Wilcoxon paired t-test on log-transformed variables

**Suppl Table 2.** Odds ratios (OR) and 95 % confidence interval (CI) for associations between Ultra Processed Food intake (as percentage of total caloric intake) and risk of breast cancer, overall and by receptor status

	Cases/controls	Model 1 <sup>1</sup> OR (95% CI)	Model 2 <sup>2</sup> OR (95% CI)
<b>All breast cancer<sup>3</sup></b>			
Tertile 1	157/175	1.00 (ref.)	1.00 (ref.)
Tertile 2	170/175	1.21 (0.86-1.70)	1.51 (1.03 -2.21)
Tertile 3	198/175	1.37 (0.97-1.92)	2.32 (1.37-3.92)
P-trend		0.07	0.002
<b>By receptors status</b>			
<b>ER positive</b>			
Tertile 1	72/80	1.00 (ref.)	1.00 (ref.)
Tertile 2	65/80	0.93 (0.55-1.59)	1.30 (0.71-2.37)
Tertile 3	103/80	1.55 (0.90-2.64)	3.63 (1.57-8.40)
P-trend		0.11	0.003
<b>ER negative</b>			
Tertile 1	27/31	1.00 (ref.)	1.00 (ref.)
Tertile 2	38/31	1.32 (0.57-3.05)	1.56 (0.61-4.00)
Tertile 3	27/30	1.06 (0.45-2.45)	1.08 (0.26-4.49)
P-trend		0.92	0.88

Abbreviations: CI, confidence interval; OR, odds ratio.

<sup>1</sup>Model 1: odds ratios were estimated by logistic regression conditioned on age ( $\pm$  3 years), city district of residence, and health insurance institution and adjusted for education ( $\leq$ primary/secondary/ $>$ secondary), moderate intensity physical activity (continuous), number of full-term pregnancies (continuous), age at first full-term pregnancy (nulliparous/ $<$ 20;[20-25]; $\geq$ 25), breast feeding ever (yes/no), BMI (continuous) and total energy intake (continuous).

<sup>2</sup>Model 2: Additionally adjusted for energy intake from the other NOVA groups (NOVA1, NOVA2, NOVA3 added simultaneously in the model).

<sup>3</sup> Cut off points for tertiles are respectively: Tertile 1= $\leq$ 21.1; tertile 2= 21.1-29.7; tertile 3=  $>$ 29.7 % of total kcal/day

**Suppl Table 3.** Odds ratios (OR) and 95 % confidence interval (CI) for associations between intake of specific subgroups of Ultra Processed Food and risk of breast cancer, overall and by receptor status

	<b>Model 2<sup>1</sup></b> <b>OR (95% CI)</b>	<b>ER positive</b> <b>OR (95% CI)</b>	<b>ER negative</b> <b>OR (95% CI)</b>
<b>Carbonated beverages</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	0.96 (0.68-1.35)	0.83 (0.48-1.41)	0.87 (0.35-2.15)
Tertile 3	1.36 (0.90-2.05)	1.52 (0.78-2.99)	0.54 (0.16-1.77)
P-trend	0.19/0.25	0.32/43	0.33/0.58
<b>Fruit juice beverages</b> <b>[Includes light and diet varieties]</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.88 (1.26-2.79)	2.37 (1.23-4.56)	0.71 (0.28-1.78)
Tertile 3	2.97 (2.01-4.38)	3.22 (1.74-5.95)	1.36 (0.54-3.43)
P-trend	<0.0001/<0.0001	<0.0001/0.0002	0.53/0.58
<b>Yogurt and dairy-based drinks</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.31 (0.93-1.84)	1.04 (0.60-1.82)	1.14 (0.43-3.00)
Tertile 3	1.22 (0.81-1.83)	1.83 (1.01-3.31)	0.63 (0.19-2.04)
P-trend	0.30/0.32	0.05/0.13	0.48/0.58
<b>Distilled alcoholic beverages</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	0.96 (0.60-1.52)	0.79 (0.37-1.68)	1.52 (0.50-4.68)
Tertile 3	1.12 (0.82-1.52)	1.50 (0.91-2.47)	0.72 (0.29-1.79)
P-trend	0.49/0.49	0.11/0.21	0.54/0.58
<b>Industrial breads</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.62 (1.12-2.34)	2.18 (1.17-4.03)	0.82 (0.34-2.01)
Tertile 3	1.98 (1.33-2.94)	2.42 (1.26-4.66)	1.41 (0.55-3.64)
P-trend	0.001/0.008	0.01/0.04	0.46/0.58
<b>Breakfast cereals</b> <b>[Includes cereal bars]</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.53 (1.07-2.18)	1.22 (0.68-2.18)	1.12 (0.41-3.05)
Tertile 3	1.73 (1.17-2.56)	1.47 (0.83-2.63)	0.81 (0.28-2.35)
P-trend	0.007/0.018	0.18/0.26	0.70/0.70
<b>Confectionery</b> <b>[Includes chocolate and candy]</b>			
Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.36 (0.97-1.91)	1.41 (0.82-2.45)	1.74 (0.70-4.33)
Tertile 3	1.21 (0.83-1.76)	1.12 (0.62-2.02)	2.04 (0.74-5.61)
P-trend	0.29/0.32	0.75/0.80	0.16/0.52

**Packaged sweet snacks [Includes cookies]**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.12 (0.78-1.61)	1.39 (0.79-2.43)	1.27 (0.42-3.81)
Tertile 3	1.75 (1.22-2.50)	2.18 (1.27-3.73)	1.85 (0.70-4.91)
P-trend	0.003/0.012	0.005/0.04	0.22/0.52

**Packaged savory snacks [Includes crackers, tacos, wafers]**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.43 (0.99-2.07)	2.00 (1.06-3.79)	2.29 (0.81-6.48)
Tertile 3	1.54 (1.03-2.31)	1.79 (0.88-3.62)	2.34 (0.74-7.37)
P-trend	0.04/0.07	0.17/0.26	0.15/0.52

**Cakes and desserts [Includes icecreams, pasteries, doughnuts, cakes]**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.53 (1.06-2.22)	1.26 (0.72-2.23)	1.27 (0.47-3.44)
Tertile 3	1.83 (1.20-2.79)	1.86 (0.97-3.55)	3.84 (1.19-12.4)
P-trend	0.005/0.016	0.06/0.14	0.03/0.24

**Sausage and reconstituted meat products [Includes bacon, ham, nuggests]**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.01 (0.71-1.44)	0.90 (0.52-1.58)	1.53 (0.58-4.09)
Tertile 3	0.78 (0.51-1.18)	1.01 (0.52-1.94)	0.57 (0.17-1.90)
P-trend	0.27/0.32	0.99/0.99	0.51/0.58

**Ready-to-eat/heat food [Includes sandwiches, burgers, hot-dogs, instant soups]**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.86 (1.27-2.72)	3.02 (1.60-5.70)	0.96 (0.36-2.58)
Tertile 3	1.97 (1.30-2.99)	2.71 (1.33-5.53)	5.53 (1.71-18.0)
P-trend	0.002/0.01	0.009/0.04	0.003/0.048

**Cheese and cheese substitutes**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.37 (0.99-1.90)	1.15 (0.67-1.95)	1.42 (0.58-3.50)
Tertile 3	1.27 (0.84-1.92)	1.23 (0.69-2.19)	1.92 (0.62-5.90)
P-trend	0.18/0.25	0.48/0.55	0.25/0.52

**Margarine and butter substitutes**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
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Tertile 2	1.74 (1.21-2.51)	1.67 (0.94-2.98)	3.19 (1.05-9.73)
Tertile 3	1.47 (1.03-2.10)	1.26 (0.73-2.17)	1.89 (0.65-5.50)
P-trend	0.02/0.04	0.37/0.46	0.26/0.52

**Other G4 food**  
**[Includes sauces,**  
**gravies, jam,**  
**mayonnaise, artificial**  
**sweeteners]**

Tertile 1	1.00 (ref.)	1.00 (ref.)	1.00 (ref.)
Tertile 2	1.10 (0.77-1.56)	1.18 (0.68-2.06)	0.94 (0.38-2.32)
Tertile 3	1.30 (0.91-1.85)	1.54 (0.89-2.66)	2.00 (0.72-5.58)
P-trend	0.14/0.22	0.12/0.21	0.19/0.52

<sup>1</sup>Model : odds ratios were estimated by logistic regression conditioned on age ( $\pm$  3 years), city district of residence, and health insurance institution and adjusted for education ( $\leq$ primary/secondary/ $>$ secondary), moderate intensity physical activity (continuous), number of full-term pregnancies (continuous), age at first full-term pregnancy (nulliparous/ $<$ 20; $[$ 20-25 $]$ ; $\geq$ 25), breast feeding ever (yes/no), BMI (continuous) and total energy intake (continuous) and energy intake from the other NOVA groups (NOVA1, NOVA2, NOVA3 added simultaneously in the model).

P-trend presents the significance of the test for trend before and after correction for multiple comparison using the Benjamini-Hochberg correction to control for multiple comparisons.

**Suppl Table 4.** Spearman correlations between total industrial trans fatty acids and ultraprocessed foods overall and by specific food items adjusted for analytical batches and case-control status

	<b>Variable</b>	<b>Correlation</b>	<b>P-value</b>
<b>NOVA4</b>	<b>NOVA4</b>	0.11	0.08
<b>subNova4 #</b>	<b>subNova4 #</b>	0.21	0.0005
<b>NOVAsub29</b>	<b>Yogurt and dairy-based drinks</b>	0.14	0.02
<b>NOVAsub31</b>	<b>Industrial breads</b>	0.13	0.04
<b>NOVAsub33</b>	<b>Confectionery [Includes chocolate and candy]</b>	0.11	0.07
<b>NOVAsub36</b>	<b>Cakes and desserts [Includes icecreams, pasteries, doughnuts, cakes]</b>	0.24	<.0001
<b>NOVAsub38</b>	<b>Ready-to-eat/heat food [Includes sandwiches, burgers, hot-dogs, instant soups]</b>	0.15	0.01
<b>NOVAsub40</b>	<b>Margarine and butter substitutes</b>	0.10	0.09