

**Supplement - Early pregnancy plasma fatty acid profiles of women later diagnosed with gestational diabetes****Supplemental Table 1.** Early pregnancy concentrations of individual fatty acids in women with and without later GDM diagnosis, in Iceland.

<i>All in µg/ml</i>	<b>Non-GDM (n=726)</b>	<b>GDM (n=127)</b>	<b>P</b>
	<i>median (10th - 90th percentile)</i>		
<b>SAFA</b>			
12:0 Lauric	3 (1 - 10)	3 (1 - 9)	0.08
14:0 Myristic	33 (20 - 59)	34 (19 - 63)	0.93
16:0 Palmiate	649 (506 - 859)	703 (528 - 934)	<b>0.00</b>
18:0 Stearic	186 (148 - 233)	191 (153 - 234)	0.16
20:0 Arachidic	7 (6 - 10)	8 (6 - 11)	<b>&lt;0.01</b>
22:0 Behenic	10 (8 - 13)	10 (8 - 13)	0.06
24:0 Lignoceric	9 (7 - 12)	9 (7 - 11)	0.09
<b>MUFA</b>			
14:1 Myristoleate	2 (1 - 3)	1.6 (1 - 4)	0.22
16:1 Palmitoleic	51 (29 - 87)	62 (34 - 104)	<b>&lt;0.01</b>
18:1n9 Oleic	561 (427 - 760)	635 (456 - 849)	<b>&lt;0.01</b>
18:1n7 Vaccenic	46 (34 - 62)	53 (37 - 70)	<b>&lt;0.01</b>
20:1 11-eicosenoate	5 (4 - 8)	6 (4 - 9)	<b>0.05</b>
24:1 Nervonic	20 (16 - 26)	22 (18 - 27)	<b>&lt;0.01</b>
<b>PUFA n-6</b>			
18:2 LA	712 (577 - 894)	728 (581 - 920)	0.31
18:3n6 GLA	6 (3 - 11)	6 (4 - 11)	<b>0.02</b>
20:2 11-14-eicosenoate	6 (4 - 9)	6 (4 - 8)	0.88
20:3n6 DGLA	49 (33 - 69)	55 (35 - 71)	<b>&lt;0.01</b>
20:4 ARA	177 (133 - 229)	194 (146 - 252)	<b>&lt;0.01</b>
22:2 Docosadienoate	1 (0.4 - 1)	1 (0.5 - 1)	<b>&lt;0.01</b>
22:4 Docosatetraenoic	4 (0.1 - 7)	5 (0.1 - 7)	0.17
<b>PUFA n-3</b>			
18:3n3 ALA	22 (14 - 35)	23 (14 - 38)	0.07
20:5 EPA	19 (10.5 - 37.3)	21 (13 - 36)	0.14
22:5n3 DPA	11 (7.7 - 16.3)	11 (8 - 16)	0.97
22:6 DHA	73 (52 - 102)	75 (56 - 100)	0.09

**Supplemental Table 2.** Spearman correlations between frequency of dietary intake and total concentrations of fatty acid types ( $\mu\text{g/ml}$ ), in pregnant women in Iceland.

---

	SFA	MUFA	PUFA n-6	Total PUFA n-3	PUFA n-3 EPA+DHA
--	-----	------	----------	----------------	---------------------

---

	Spearman Correlation	P	Spearman Correlation	P	Spearman Correlation	P	Spearman Correlation	P	Spearman Correlation	P
Fatty fish	-0.01	0.77	-0.09	0.01	0.00	0.92	<b>0.20</b>	<0.01	<b>0.24</b>	<0.01
Lean fish	-0.02	0.57	-0.06	0.08	-0.04	0.31	<b>0.14</b>	<0.01	<b>0.18</b>	<0.01
Omega 3 supplements	<b>-0.09</b>	0.01	<b>-0.15</b>	0.00	<b>-0.07</b>	0.03	<b>0.25</b>	<0.01	<b>0.31</b>	<0.01
Red meat	0.02	0.55	0.01	0.81	0.03	0.38	<b>0.08</b>	0.02	<b>0.10</b>	<0.01
Poultry	-0.03	0.38	-0.04	0.23	0.01	0.87	-0.03	0.39	-0.03	0.32
Processed meat	0.01	0.81	0.03	0.43	-0.02	0.62	0.00	0.89	-0.03	0.43
Whole milk	0.02	0.59	-0.02	0.51	-0.05	0.13	0.07	0.06	<b>0.08</b>	0.02
Low fat milk	0.02	0.55	0.01	0.79	-0.04	0.25	0.05	0.18	0.04	0.21
skimmed milk	0.03	0.38	0.04	0.28	0.03	0.40	0.05	0.11	0.04	0.21
Soured dairy products	-0.04	0.25	<b>-0.10</b>	<0.01	<b>-0.08</b>	0.02	0.04	0.27	0.06	0.10
Cheese	-0.01	0.67	<b>-0.10</b>	<0.01	-0.02	0.54	-0.03	0.44	-0.02	0.52
Butter on bread	0.00	0.89	-0.06	0.10	-0.01	0.79	0.04	0.30	0.04	0.23
Butter	0.01	0.88	-0.03	0.46	0.01	0.71	0.04	0.29	0.03	0.41
Vegetable oil	-0.02	0.50	-0.04	0.24	0.01	0.74	<b>0.09</b>	0.01	<b>0.09</b>	0.01
French fries	<b>-0.08</b>	0.02	-0.01	0.83	-0.05	0.15	<b>-0.15</b>	<0.01	<b>-0.19</b>	<0.01
Cakes and condiments	-0.03	0.42	-0.05	0.13	-0.04	0.21	-0.05	0.17	-0.04	0.23
Soft drinks	0.06	0.07	<b>0.11</b>	<0.01	0.01	0.67	-0.03	0.34	<b>-0.08</b>	0.02
Fruit juice	-0.02	0.63	-0.01	0.71	-0.06	0.07	0.00	0.89	0.00	0.90
Fruits and vegetables	<b>-0.10</b>	<0.01	<b>-0.14</b>	<0.01	-0.04	0.25	0.02	0.48	0.06	0.06
Bens nuts and seeds	<b>-0.11</b>	<0.01	<b>-0.12</b>	<0.01	-0.04	0.22	-0.01	0.69	0.01	0.82
Wholegrains	0.00	0.94	-0.02	0.58	-0.01	0.83	0.03	0.40	0.03	0.35
Coffee	-0.06	0.07	<b>-0.12</b>	<0.01	-0.02	0.56	-0.02	0.48	-0.02	0.61

**Supplemental Table 3.** Spearman correlations between frequency of dietary intake and ratios<sup>1</sup> of fatty acid types, in pregnant women in Iceland.

	SFA ratio <sup>1</sup>	MUFA ratio <sup>1</sup>	PUFA n-6 ratio <sup>1</sup>	PUFA n-3 ratio <sup>1</sup>	PUFA n-3 EPA+DHA ratio <sup>1</sup>
--	------------------------	-------------------------	-----------------------------	-----------------------------	--

	Spearman Correlation	P	Spearman Correlation	P	Spearman Correlation	P	Spearman Correlation	P	Spearman Correlation	P
Fatty fish	0.01	0.69	<b>-0.17</b>	0.00	0.05	0.17	<b>0.26</b>	<0.01	<b>0.28</b>	<0.01
Lean fish	0.04	0.30	<b>-0.09</b>	0.01	-0.01	0.67	<b>0.21</b>	<0.01	<b>0.23</b>	<0.01
Omega 3 supplements	-0.05	0.16	<b>-0.18</b>	<0.01	0.05	0.19	<b>0.38</b>	<0.01	<b>0.39</b>	<0.01
Red meat	0.00	0.98	-0.04	0.29	0.02	0.56	<b>0.09</b>	0.01	<b>0.10</b>	<0.01
Poultry	-0.02	0.63	-0.06	0.07	<b>0.08</b>	0.02	-0.02	0.61	-0.02	0.58
Processed meat	0.01	0.75	0.05	0.12	-0.05	0.17	-0.01	0.71	-0.04	0.28
Whole milk	<b>0.11</b>	<0.01	-0.02	0.50	<b>-0.08</b>	0.01	<b>0.10</b>	<0.01	<b>0.10</b>	<0.01
Low fat milk	0.06	0.08	0.01	0.75	<b>-0.07</b>	0.05	0.04	0.21	0.04	0.30
skimmed milk	0.00	0.93	-0.01	0.88	-0.03	0.33	0.04	0.23	0.03	0.43
Sour dairy	<b>0.10</b>	0.00	<b>-0.11</b>	<0.01	0.00	0.98	<b>0.11</b>	<0.01	<b>0.11</b>	<0.01
Cheese	<b>0.11</b>	0.00	<b>-0.15</b>	<0.01	<b>0.07</b>	0.04	0.01	0.70	0.01	0.78
Butter on bread	<b>0.07</b>	0.04	<b>-0.10</b>	<0.01	0.03	0.44	0.06	0.10	<b>0.06</b>	0.10
Butter	0.02	0.49	-0.06	0.08	0.02	0.49	0.05	0.15	0.03	0.33
Vegetable oil	-0.02	0.53	<b>-0.08</b>	0.03	0.04	0.20	<b>0.11</b>	<0.01	<b>0.10</b>	<0.01
French fries	<b>-0.10</b>	<0.01	<b>0.08</b>	0.02	0.04	0.27	<b>-0.14</b>	<0.01	<b>-0.18</b>	<0.01
Cakes and condiments	<b>0.07</b>	0.03	-0.04	0.23	0.00	0.99	-0.01	0.70	-0.01	0.72
Soft drinks	0.02	0.52	<b>0.14</b>	0.00	<b>-0.11</b>	<0.01	<b>-0.10</b>	<0.01	<b>-0.15</b>	0.00
Fruit juice	0.05	0.19	0.02	0.62	-0.05	0.19	0.03	0.44	0.01	0.83
Fruits and vegetables	-0.04	0.22	<b>-0.13</b>	<0.01	<b>0.12</b>	<0.01	<b>0.10</b>	<0.01	<b>0.12</b>	<0.01
Bens nuts and seeds	<b>-0.07</b>	0.05	<b>-0.12</b>	<0.01	<b>0.12</b>	<0.01	<b>0.07</b>	0.04	<b>0.08</b>	0.02
wholegrains	0.03	0.33	-0.03	0.35	-0.01	0.76	0.05	0.15	0.04	0.23
Coffee	0.02	0.61	<b>-0.15</b>	<0.01	<b>0.12</b>	<0.01	0.05	0.17	0.04	0.22

<sup>1</sup> Relative FA concentrations as a ratio of total FA.

**Supplement Table 4.** Comparison of early pregnancy fatty acid concentrations and ratios between women with and without GDM diagnosis later in pregnancy, only including women without known GDM risk factors<sup>1</sup>.

	Non-GDM median (10th - 90th percentile)	GDM median (10th - 90th percentile)		Mean adjusted difference	Non-GDM median (10th - 90th percentile)	GDM median (10th - 90th percentile)	
	Total µg/ml		P	µg/ml (95%CI) <sup>2</sup>	Ratio % <sup>3</sup>		P
<i>All</i>	(n=278)	(n=34)			(n=278)	(n=34)	
SFA	896 (715 - 1129)	930 (737 - 1146)	0.36	15 (-48, 78)	33.4 (32 - 36)	33.2 (31 - 35)	0.31
MUFA	679 (531 - 895)	754 (550 - 970)	<b>&lt;0.01</b>	57 (0.02, 114)	25.5 (23 - 29)	26.4 (24 - 31)	<b>&lt;0.01</b>
PUFA n-6	947 (818 - 1168)	996 (806 - 1163)	0.14	6 (-50, 63)	36.0 (33 - 40)	35.2 (31 - 38)	0.13
PUFA n-3	124 (92 - 175)	128 (97 - 165)	0.63	-0.06 (-14, 12)	4.6 (3.6 - 6.2)	4.7 (3.8 - 5.7)	0.71
EPA + DHA	90 (92 - 175)	94 (72 - 125)	0.49	-0.08 (-11, 11)	3.4 (2.4 - 4.7)	3.4 (2.6 - 4.3)	1.00
Total Fatty acids	2647 (2174 - 3269)	2765 (2259 - 3336)	0.07	78 (-89, 246)	-	-	

<sup>1</sup> Excluding women with BMI  $\geq 30$  kg/m<sup>2</sup>, age  $\geq 40$  years and parity  $\geq 1$

<sup>2</sup> Adjusted for age, pre-pregnancy BMI, weekly weight gain and smoking during pregnancy when all women are included. No adjustment for pre-pregnancy BMI when stratifying for BMI.

<sup>3</sup> Relative FA concentrations as a ratio of total FA.

BMI: Body mass index. FA: Fatty acids GDM: Gestational diabetes mellitus.