

Plasma Sphingolipids in Relation to Glycemia and Glucose Tolerance in People Without Diabetes

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Supplemental Table S1. Plasma sphingolipid levels in participants with normal or impaired glucose regulation

Sphingolipid species	NFG-NGT	IGT	IFG-IGT	P value
Total sphingolipids (nmol/ml)	97.0 ± 24.7	106 ± 32.7	118 ± 32.8	<0.0001
Total ceramides (pmol/ml)	3522 ± 1480	3701 ± 1682	4867 ± 2189	<0.0001
Monohexosyl ceramides (pmol/ml)	4859 ± 2726	3271 ± 2077	3156 ± 1797	<0.0001
Lactosyl ceramides (pmol/ml)	8748 ± 4037	4802 ± 3112	3304 ± 1495	<0.0001
Total sphingomyelins (nmol/ml)	88.0 ± 22.7	98.1 ± 32.0	109 ± 32.5	<0.0001
Sphingosine (pmol/ml)	125 ± 54.2	150 ± 99.9	234 ± 145	<0.0001
Dihydrosphingosine (pmol/ml)	10.2 ± 22.0	22.2 ± 27.4	30.7 ± 19.6	<0.0001
Sphingosine-1-phosphate (pmol/ml)	412 ± 183	359 ± 170	331 ± 147	<0.0001
Dihydrosphingosine-1-phosphate (pmol/ml)	71.5 ± 33.7	54.2 ± 29.4	40.6 ± 18.9	<0.0001

NFG-NGT, normal fasting glucose and normal glucose tolerance; IGT, impaired glucose tolerance; IFG-IGT, impaired fasting glucose and impaired glucose tolerance

Supplemental Table S2. Plasma sphingolipid ratios across participants with normal or impaired glucose regulation

Sphingolipid species	NFG-NGT	IGT	IFG-IGT	P value
Ceramide C16:0/18:0	1.82 ± 1.02	4.76 ± 4.63	7.30 ± 6.58	<0.0001
Ceramides C18:0/18:1	9.02 ± 5.72	8.02 ± 5.11	7.64 ± 5.05	0.028
Ceramide C24:0/24:1	4.35 ± 2.24	4.05 ± 1.74	4.61 ± 2.45	0.11
Ceramide C26:0/26:1	2.11 ± 0.89	1.51 ± 1.01	1.08 ± 0.95	<0.0001
Monohexosyl ceramide C16:0/18:0	22.8 ± 13.7	17.8 ± 10.8	16.9 ± 13.9	<0.0001
Monohexosyl ceramide C18:0/18:1	1.27 ± 0.94	2.31 ± 2.71	3.14 ± 3.77	<0.0001
Monohexosyl ceramide C24:0/24:1	2.02 ± 1.01	2.72 ± 6.43	2.80 ± 6.45	0.266
Monohexosyl ceramide C26:0/26:1	0.704 ± 0.38	0.909 ± 0.93	1.28 ± 1.44	<0.0001
Lactosyl ceramide C16:0/18:0	119 ± 117	140 ± 118	124 ± 106	0.334
Lactosyl ceramide C18:0/18:1	1.54 ± 1.68	0.77 ± 0.93	0.56 ± 0.71	<0.0001
Lactosyl ceramide C24:0/24:1	0.53 ± 0.38	0.45 ± 0.33	0.34 ± 0.23	<0.0001
Lactosyl ceramide C26:0/26:1	0.63 ± 0.57	0.63 ± 0.65	0.44 ± 0.32	0.0002
Sphingomyelin C16:0/18:0	3.45 ± 0.73	3.37 ± 1.13	3.72 ± 2.45	0.157
Sphingomyelin C18:0/18:1	1.24 ± 0.18	1.18 ± 0.28	1.42 ± 1.63	0.103
Sphingomyelin C24:0/24:1	0.55 ± 0.11	0.53 ± 0.13	0.52 ± 0.16	0.054
Sphingomyelin C26:0/26:1	0.34 ± 0.10	0.35 ± 0.13	0.35 ± 0.13	0.905

NFG-NGT, normal fasting glucose and normal glucose tolerance; IGT, impaired glucose tolerance; IFG-IGT, impaired fasting glucose and impaired glucose tolerance