

**Supplemental Table S1.** Relative abundance (%) of the major bacterial phyla by dairy product intake

Type (median intake <sup>1</sup> )	Phylum	Relative abundance (%)		<i>q</i> value <sup>2</sup>
		Lower Intake	Higher Intake	
<b>Total dairy</b> (0.57 milk-equivalent serving)	<i>Firmicutes</i>	44.5	49.9	0.06
	<i>Bacteroidetes</i>	42.6	32.9	<b>0.007</b>
	<i>Proteobacteria</i>	9.92	9.76	0.70
	<i>Verrucomicrobia</i>	1.71	3.94	<b>0.02</b>
	<i>Fusobacteria</i>	0.89	2.66	<b>0.006</b>
	<i>Actinobacteria</i>	0.29	0.68	<b>0.03</b>
<b>Milk</b> (0.24 cup)	<i>Firmicutes</i>	49.8	45.6	0.28
	<i>Bacteroidetes</i>	36.4	37.3	0.62
	<i>Proteobacteria</i>	8.79	10.69	0.08
	<i>Verrucomicrobia</i>	1.05	4.66	<b>&lt; 0.0001</b>
	<i>Fusobacteria</i>	3.49	0.64	0.86
	<i>Actinobacteria</i>	0.40	0.61	0.54
<b>Cheese</b> (0.27 milk-equivalent serving)	<i>Firmicutes</i>	45.9	49.6	0.24
	<i>Bacteroidetes</i>	43.0	30.2	<b>&lt; 0.0001</b>
	<i>Proteobacteria</i>	7.90	12.0	0.24
	<i>Verrucomicrobia</i>	2.25	3.88	<b>0.01</b>
	<i>Fusobacteria</i>	0.19	3.87	<b>0.0007</b>
	<i>Actinobacteria</i>	0.66	0.36	0.26
<b>Yogurt</b> (0.002 cup)	<i>Firmicutes</i>	47.6	47.7	0.91
	<i>Bacteroidetes</i>	41.2	32.4	<b>0.032</b>
	<i>Proteobacteria</i>	8.37	11.9	0.10
	<i>Verrucomicrobia</i>	1.73	4.40	0.91
	<i>Fusobacteria</i>	0.49	3.46	0.09
	<i>Actinobacteria</i>	0.41	0.64	0.91

<sup>1</sup>Higher vs. lower intake was dichotomized using the median intake of each food item in 34 participants. For yogurt, the comparison was between no yogurt and had yogurt intake.

<sup>2</sup>The bacteria phylum was ordered according to the relative abundance. The statistically significant  $q$  value was bolded.

**Supplemental Table S2.** Relative abundance (%) of major bacterial genera by dairy products intake<sup>1</sup>

Type (median intake <sup>2</sup> )	Genus	Relative abundance (%)		<i>q</i> value
		Lower Intake	Higher Intake	
<b>Total dairy</b>	<i>Bacteroides</i>	36.4	24.5	<b>0.01</b>
	<i>Faecalibacterium</i>	5.51	11.2	<b>0.0007</b>
	<i>Akkermansia</i>	1.71	3.94	0.05
	<i>Fusobacterium</i>	0.85	2.65	<b>0.01</b>
	<i>Lachnoclostridium</i>	2.31	1.58	0.05
	<i>Haemophilus</i>	0.78	1.59	<b>0.01</b>
	<i>Erysipelatoclostridium</i>	1.59	1.19	0.05
	<i>Bifidobacterium</i>	0.05	0.25	0.05
<b>Milk</b>	<i>Faecalibacterium</i>	5.77	11.3	<b>0.007</b>
	<i>Akkermansia</i>	1.08	4.57	<b>&lt;0.0001</b>
	<i>Roseburia</i>	1.09	3.75	<b>0.0003</b>
	<i>Parabacteroides</i>	0.63	2.23	<b>0.005</b>
	<i>Haemophilus</i>	0.55	1.81	<b>0.008</b>
	<i>Alistipes</i>	0.75	1.69	<b>0.02</b>
	<i>Lachnoclostridium</i>	2.31	1.53	<b>0.03</b>
	<i>Bifidobacterium</i>	0.09	0.23	0.88
<b>Cheese</b>	<i>Bacteroides</i>	33.6	29.4	<b>0.03</b>
	<i>Parabacteroides</i>	2.16	0.81	<b>0.0009</b>
	<i>Escherichia/Shigella</i>	2.65	7.58	<b>0.049</b>
	<i>Fusobacterium</i>	0.18	3.82	<b>0.004</b>
	<i>Akkermansia</i>	2.25	3.88	<b>0.03</b>
	<i>Subdoligranulum</i>	2.52	1.20	<b>&lt;0.0001</b>
	<i>Alistipes</i>	1.72	0.78	<b>0.05</b>
	<i>Bifidobacterium</i>	0.23	0.10	0.15
<b>Yogurt</b>	<i>Lachnospiraceae (unc91005)</i>	8.20	5.79	0.045
	<i>Bifidobacterium</i>	0.11	0.22	0.15

<sup>1</sup>Only the major genera (> 1% relative abundance) with the statistically significant difference and *Bifidobacterium* were shown in the table.

<sup>2</sup>Higher vs. lower intake was dichotomized using the median intake of each food item in 34 participants. For yogurt, the comparison was between no yogurt and had yogurt intake.

**Supplemental Table S3.** Relative abundance of bacterial genera by dairy consumption in sigmoid samples

Type (median intake <sup>‡</sup> )	Genus	Relative abundance (%)		<i>q</i> value
		Lower Intake	Higher Intake	
Total Dairy	<i>Faecalibacterium</i>	7.36	12.5	0.02
	<i>Bifidobacterium</i>	0.01	0.28	0.04
Milk	<i>Faecalibacterium</i>	5.74	11.5	0.004
	<i>Akkermansia</i>	1.05	4.65	< 0.0001
Cheese	<i>Bacteroides</i>	35.9	24.2	0.08
	<i>Subdoligranulum</i>	2.52	1.20	<0.0001