

Supplementary Tables

Table S1. Comparison of diversity (genus level) on Day 0.

(A) α -diversity on Day 0			
Gender	Group	Simpson index	p-value
Males	LNC	0.827±0.053	0.316
	Control	0.842±0.056	
Females	LNC	0.848±0.059	0.705
	Control	0.846±0.054	
(B) β -diversity on Day 0			
Gender	p-value		
	PerMANOVA	dispersion	
Males	0.376	0.155	
Females	0.287	0.038	

Values are mean ± SD.

Table S2. Comparison of genus-level intestinal microbiota on Day 0.

(A) Comparison of genus-level intestinal microbiota in males on Day 0			
Genus	Relative abundance (%)		p-value
	LNC	Control	
<i>Phocaeicola</i> †	20.96	24.52	0.233
<i>Prevotella</i>	11.67	6.23	0.299
Unclassified	10.65	9.15	0.701
<i>Bifidobacterium</i>	6.17	8.51	0.054
<i>Bacteroides</i>	5.63	5.73	0.663
<i>Faecalibacterium</i>	5.08	4.79	0.714
<i>Megamonas</i>	4.95	2.98	0.336
<i>Blautia</i>	3.06	4.56	0.098
<i>Fusicatenibacter</i>	2.59	3.08	0.551
<i>Collinsella</i>	2.34	1.93	0.765
<i>Parabacteroides</i>	2.33	2.88	0.438
<i>Streptococcus</i>	2.32	1.32	0.449
<i>Agathobacter</i>	1.99	2.31	0.811
<i>Ruminococcus</i>	1.71	1.60	0.592
<i>Alistipes</i>	1.57	1.41	0.830
<i>Holdemanella</i>	1.54	1.08	0.663
<i>Faecalibacillus</i>	1.48	1.29	0.749
<i>Dorea</i>	1.22	1.58	0.405
<i>Phascolarctobacterium</i>	1.21	0.87	0.519
<i>Lachnospira</i>	1.09	0.85	0.631
(B) Comparison of genus-level intestinal microbiota in females on Day 0			
Genus	Relative abundance (%)		p-value
	LNC	Control	
<i>Phocaeicola</i> †	23.93	17.31	0.092
Unclassified	13.39	10.83	0.327
<i>Bacteroides</i>	9.76	11.11	0.835
<i>Bifidobacterium</i>	7.70	9.77	0.429
<i>Faecalibacterium</i>	6.94	5.79	0.313
<i>Fusicatenibacter</i>	3.82	2.55	0.143
<i>Blautia</i>	3.18	3.92	0.369
<i>Parabacteroides</i>	3.05	3.53	0.585
<i>Alistipes</i>	2.88	4.11	0.501
<i>Agathobacter</i>	2.54	2.02	0.684
<i>Prevotella</i>	2.30	6.99	0.477
<i>Ruminococcus</i>	2.23	2.36	0.787
<i>Anaerostipes</i>	1.38	0.83	0.149
<i>Megamonas</i>	1.14	0.44	0.457
<i>Holdemanella</i>	1.11	1.38	0.396
<i>Lachnospira</i>	1.10	1.37	0.584
<i>Dorea</i>	1.01	0.87	0.648
<i>Streptococcus</i>	0.99	2.24	0.286
<i>Mediterraneibacter</i>	0.84	0.47	0.103
<i>Collinsella</i>	0.83	1.17	0.705

The list includes the 20 most abundant genera identified in the LNC group.

† *Phocaeicola* is a genus reclassified from *Bacteroides* in 2019.

Table S3. Changes in β -diversity at the genus level.

Gender	Group	Comparison		p-value	
				PerMANOVA	dispersion
Males	LNC	Day 0	Day 31	0.584	0.046
		Day 31	Day 62	0.010	0.046
		Day 0	Day 62	0.010	0.763
	Control	Day 0	Day 31	0.396	0.046
		Day 31	Day 62	0.010	0.084
		Day 0	Day 62	0.010	0.606
Females	LNC	Day 0	Day 31	0.842	0.333
		Day 31	Day 62	0.010	0.118
		Day 0	Day 62	0.010	0.525
	Control	Day 0	Day 31	0.545	0.286
		Day 31	Day 62	0.010	0.392
		Day 0	Day 62	0.010	0.797

Table S4. Genera whose abundance differed significantly between IB and NB groups.

Genus	Relative abundance (%)						p-value
	IB			NB			
<i>Bifidobacterium</i>	8.02	±	8.19	1.08	±	1.93	0.003

Values are mean ±SD.

Table S5. Sample size for each group.

	Males	Females
Healthy	52	240
Obesity	680	663
Diabetes	30	17
Dyslipidemia	72	137
Hypertension	112	108

Table S6. Comparison of genus-level intestinal microbiota in each disease and healthy group.

(A) Comparison of genus-level intestinal microbiota in males									
	Healthy	Obesity		Diabetes		Dyslipidemia		Hypertension	
	RA (%)	RA (%)	p-value	RA (%)	p-value	RA (%)	p-value	RA (%)	p-value
<i>Phocaeicola</i>	15.89	19.08	0.373	15.73	0.384	21.60	0.044	17.62	0.790
Unclassified	14.63	12.78	0.053	15.50	0.238	12.47	0.139	14.79	0.810
<i>Bacteroides</i>	10.99	9.70	0.034	13.16	0.812	13.02	0.646	11.40	0.618
<i>Prevotella</i>	10.86	10.75	0.706	3.71	0.523	6.65	0.466	9.07	0.752
<i>Faecalibacterium</i>	8.03	6.26	0.003	6.21	0.007	6.36	0.026	6.50	0.025
<i>Bifidobacterium</i>	4.55	3.70	0.003	6.29	0.831	3.78	0.092	2.75	0.000
<i>Alistipes</i>	3.03	2.41	0.002	4.85	0.372	2.65	0.170	3.28	0.177
<i>Blautia</i>	2.96	2.84	0.558	1.71	0.019	3.28	0.472	3.32	0.577
<i>Agathobacter</i>	2.40	2.00	0.240	0.94	0.006	1.43	0.028	1.77	0.167
<i>Anaerostipes</i>	2.26	1.39	0.005	0.77	0.001	1.58	0.177	1.33	0.030
(B) Comparison of genus-level intestinal microbiota in females									
	Healthy	Obesity		Diabetes		Dyslipidemia		Hypertension	
	RA (%)	RA (%)	p-value	RA (%)	p-value	RA (%)	p-value	RA (%)	p-value
Unclassified	17.04	15.28	0.027	18.00	0.792	16.32	0.318	16.63	0.643
<i>Phocaeicola</i>	17.01	16.88	0.764	18.64	0.476	15.45	0.111	17.72	0.723
<i>Bacteroides</i>	13.54	14.40	0.418	10.79	0.177	15.66	0.075	13.68	0.776
<i>Faecalibacterium</i>	7.65	6.98	0.033	6.35	0.658	7.93	0.879	7.29	0.402
<i>Bifidobacterium</i>	5.22	4.26	0.003	4.39	0.323	4.41	0.093	4.15	0.117
<i>Alistipes</i>	4.39	3.50	0.002	2.40	0.036	4.21	0.613	4.38	0.630
<i>Prevotella</i>	4.16	5.48	0.230	7.62	0.269	5.21	0.603	4.59	0.655
<i>Blautia</i>	3.43	3.25	0.351	2.89	0.696	3.21	0.575	3.69	0.693
<i>Parabacteroides</i>	2.42	2.98	0.154	2.28	0.693	2.43	0.757	2.77	0.289
<i>Anaerostipes</i>	2.06	1.61	0.002	1.71	0.551	1.72	0.117	1.57	0.029

Values are mean. RA, relative abundance. The list includes the 10 most abundant genera identified in the healthy group