

**Table S3:** Change in gut microbiome composition in each stratified group.

	Physiological Bodyfat Percentage (n=32)			Elevated Bodyfat Percentage (n=30)		
<i>Coefficients</i>	<i>Estimates</i>	<i>CI</i>	<i>P Value</i>	<i>Estimates</i>	<i>CI</i>	<i>P Value</i>
(Intercept)	-0.13	-0.68 – 0.41	0.62	0.12	-0.42 – 0.66	0.655
Age	0.03	-0.37 – 0.43	0.88	0.28	-0.09 – 0.65	0.134
Fat Mass	-0.07	-0.33 – 0.48	0.71	-0.11	-0.47 – 0.24	0.520
Group [SYN]	0.26	-0.55 – 1.06	0.51	-0.10	-0.82 – 0.63	0.785
Baseline Microbial Diversity	-0.22	-0.75 – 0.30	0.39	-1.27	-2.29 – -0.26	<b>0.016</b>
Baseline Microbial Diversity*Group [SYN]	0.15	-0.68 – 0.97	0.72	1.16	0.06 – 2.25	<b>0.039</b>
Marginal R2 / Conditional R2	0.046 / -0.137			0.328 / 0.188		