

Title:

Supplementary tables of "Health and disease imprinted in the time variability of the human microbiome"

Running title:

Supplementary tables of "Microbiota, are you sick?"

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Supplementary Table S1. Taylor's parameters. Individuals with either animal-based (A) or plant-based (P) diets (*I*). Previous to the diet, the population sampled is described by $\bar{V} = 0.09 \pm 0.05$, $\bar{\beta} = 0.77 \pm 0.04$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
A	0.26 ± 0.05	0.826 ± 0.025	0.918	3.1 ± 0.9	1.2 ± 0.6
A	0.32 ± 0.06	0.857 ± 0.025	0.924	4.4 ± 1.1	2.0 ± 0.6
A	0.194 ± 0.033	0.813 ± 0.024	0.918	1.9 ± 0.6	0.9 ± 0.6
A	0.24 ± 0.04	0.824 ± 0.020	0.924	2.7 ± 0.7	1.2 ± 0.5
A	0.34 ± 0.06	0.855 ± 0.024	0.931	4.7 ± 1.1	1.9 ± 0.6
A	0.30 ± 0.05	0.847 ± 0.022	0.921	3.9 ± 1.0	1.7 ± 0.5
A	0.133 ± 0.021	0.784 ± 0.023	0.916	0.7 ± 0.4	0.2 ± 0.6
A	0.25 ± 0.04	0.831 ± 0.024	0.929	3.0 ± 0.8	1.4 ± 0.6
P	0.23 ± 0.05	0.804 ± 0.035	0.885	2.6 ± 0.9	0.7 ± 0.8
P	0.097 ± 0.018	0.705 ± 0.031	0.891	0.03 ± 0.34	-1.6 ± 0.7
P	0.037 ± 0.006	0.642 ± 0.025	0.881	-1.12 ± 0.11	-3.1 ± 0.6
P	0.118 ± 0.019	0.723 ± 0.025	0.895	0.4 ± 0.4	-1.2 ± 0.6
P	0.17 ± 0.04	0.78 ± 0.04	0.842	1.5 ± 0.7	0.1 ± 0.9
P	0.123 ± 0.020	0.757 ± 0.026	0.914	0.5 ± 0.4	-0.4 ± 0.6
P	0.19 ± 0.05	0.77 ± 0.04	0.871	1.8 ± 0.9	-0.0 ± 0.9
P	0.121 ± 0.020	0.736 ± 0.027	0.921	0.5 ± 0.4	-0.9 ± 0.6
P	0.187 ± 0.034	0.771 ± 0.030	0.908	1.8 ± 0.7	-0.1 ± 0.7
P	0.097 ± 0.015	0.735 ± 0.025	0.922	0.05 ± 0.28	-0.9 ± 0.6

Supplementary Table S2. Taylor's parameters for individuals taking antibiotics (2). Prior to the antibiotics intake, the population sampled is described by $\bar{V} = 0.12 \pm 0.05$, $\bar{\beta} = 0.75 \pm 0.04$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
Ab	0.35 ± 0.07	0.81 ± 0.04	0.925	4.3 ± 1.4	1.3 ± 0.9
Ab	0.41 ± 0.09	0.82 ± 0.04	0.908	5.6 ± 1.8	1.6 ± 0.9
Ab	0.23 ± 0.04	0.770 ± 0.031	0.920	2.1 ± 0.8	0.5 ± 0.7
Ab	0.165 ± 0.029	0.738 ± 0.031	0.928	0.9 ± 0.6	-0.3 ± 0.7
Ab	0.34 ± 0.06	0.812 ± 0.032	0.936	4.1 ± 1.2	1.5 ± 0.7
Ab	0.26 ± 0.05	0.798 ± 0.033	0.931	2.8 ± 0.9	1.1 ± 0.8

Supplementary Table S3. Taylor’s parameters for persons diagnosed with irritable bowel syndrome (IBS) (3). Healthy individuals sampled in this study are characterized by $\bar{V} = 0.135 \pm 0.010, \bar{\beta} = 0.692 \pm 0.024$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
IBS (minor)	0.205 ± 0.034	0.740 ± 0.029	0.917	6.9 ± 3.3	2.0 ± 1.2
IBS (severe)	0.35 ± 0.06	0.793 ± 0.025	0.934	21 ± 6	4.2 ± 1.0

Supplementary Table S4. Taylor's parameters for the healthy subject of the discordant twins (4). This table continues in Supplementary Table 5. The population of healthy twins is characterized by $\bar{V} = 0.25 \pm 0.10$, $\bar{\beta} = 0.863 \pm 0.028$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
DH	0.27 ± 0.04	0.835 ± 0.016	0.925	0.2 ± 0.4	-1.0 ± 0.6
DH	0.36 ± 0.06	0.858 ± 0.015	0.929	1.1 ± 0.6	-0.2 ± 0.5
DH	0.35 ± 0.06	0.859 ± 0.014	0.926	1.0 ± 0.5	-0.1 ± 0.5
DH	0.25 ± 0.04	0.829 ± 0.014	0.911	0.0 ± 0.4	-1.2 ± 0.5
DH	0.30 ± 0.05	0.844 ± 0.014	0.920	0.5 ± 0.4	-0.7 ± 0.5
DH	0.29 ± 0.05	0.850 ± 0.016	0.915	0.4 ± 0.5	-0.5 ± 0.5
DH	0.28 ± 0.05	0.848 ± 0.016	0.921	0.3 ± 0.5	-0.5 ± 0.6
DH	0.35 ± 0.07	0.861 ± 0.017	0.918	0.9 ± 0.6	-0.0 ± 0.6
DH	0.31 ± 0.04	0.833 ± 0.012	0.916	0.6 ± 0.4	-1.1 ± 0.4
DH	0.33 ± 0.05	0.843 ± 0.013	0.925	0.8 ± 0.5	-0.7 ± 0.5
DH	0.31 ± 0.05	0.852 ± 0.014	0.925	0.6 ± 0.5	-0.4 ± 0.5
DH	0.31 ± 0.05	0.853 ± 0.015	0.930	0.6 ± 0.5	-0.4 ± 0.5
DH	0.203 ± 0.033	0.815 ± 0.015	0.907	-0.44 ± 0.32	-1.7 ± 0.5

Supplementary Table S5. Taylor's parameters for the kwashiorkor part of the discordant twins (4). This is a continuation of Supplementary Table 4. The population of healthy twins is characterized by $\bar{V} = 0.25 \pm 0.10$, $\bar{\beta} = 0.863 \pm 0.028$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
DK	0.40 ± 0.07	0.859 ± 0.017	0.926	1.5 ± 0.7	-0.1 ± 0.6
DK	0.44 ± 0.08	0.868 ± 0.016	0.919	1.8 ± 0.8	0.2 ± 0.6
DK	0.196 ± 0.031	0.819 ± 0.014	0.916	-0.50 ± 0.30	-1.5 ± 0.5
DK	0.160 ± 0.026	0.798 ± 0.015	0.904	-0.85 ± 0.25	-2.3 ± 0.5
DK	0.30 ± 0.05	0.845 ± 0.014	0.924	0.5 ± 0.4	-0.6 ± 0.5
DK	0.23 ± 0.04	0.834 ± 0.014	0.908	-0.1 ± 0.4	-1.0 ± 0.5
DK	0.27 ± 0.05	0.848 ± 0.015	0.930	0.2 ± 0.4	-0.5 ± 0.5
DK	0.35 ± 0.07	0.860 ± 0.019	0.916	1.0 ± 0.7	-0.1 ± 0.7
DK	0.34 ± 0.05	0.835 ± 0.012	0.917	0.9 ± 0.5	-1.0 ± 0.4
DK	0.25 ± 0.04	0.831 ± 0.012	0.912	0.0 ± 0.4	-1.1 ± 0.4
DK	0.36 ± 0.06	0.858 ± 0.013	0.918	1.1 ± 0.5	-0.2 ± 0.5
DK	0.31 ± 0.06	0.851 ± 0.016	0.924	0.6 ± 0.6	-0.4 ± 0.6
DK	0.149 ± 0.022	0.799 ± 0.013	0.905	-0.96 ± 0.22	-2.2 ± 0.5

Supplementary Table S6. Taylor's parameters for individuals with different degrees of over-weight and obesity (5). Healthy people in this study, who were not obese, are characterized by $\bar{V} = 0.19 \pm 0.06$, $\bar{\beta} = 0.806 \pm 0.034$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
OW	0.59 ± 0.12	0.894 ± 0.034	0.920	6.6 ± 2.0	2.6 ± 1.0
OW	0.22 ± 0.04	0.830 ± 0.030	0.904	0.5 ± 0.6	0.7 ± 0.9
OBI	0.28 ± 0.04	0.855 ± 0.022	0.958	1.5 ± 0.6	1.4 ± 0.6
OBI	0.33 ± 0.07	0.870 ± 0.031	0.916	2.4 ± 1.1	1.9 ± 0.9
OBII	0.223 ± 0.032	0.823 ± 0.023	0.938	0.6 ± 0.5	0.5 ± 0.7
OBII	0.208 ± 0.029	0.844 ± 0.022	0.935	0.4 ± 0.5	1.1 ± 0.7
OBIII	0.34 ± 0.05	0.855 ± 0.025	0.943	2.5 ± 0.9	1.4 ± 0.7
OBIII	0.26 ± 0.04	0.845 ± 0.026	0.954	1.1 ± 0.7	1.2 ± 0.8
OBIII	0.33 ± 0.06	0.870 ± 0.027	0.908	2.4 ± 1.0	1.9 ± 0.8
OBIII	0.200 ± 0.026	0.843 ± 0.020	0.949	0.2 ± 0.4	1.1 ± 0.6
OBIII	0.30 ± 0.05	0.846 ± 0.026	0.929	1.9 ± 0.8	1.2 ± 0.7
OBIII	0.176 ± 0.029	0.826 ± 0.026	0.894	-0.2 ± 0.5	0.6 ± 0.8
OBIII	0.30 ± 0.06	0.841 ± 0.031	0.896	1.8 ± 0.9	1.0 ± 0.9
OBIII	0.28 ± 0.04	0.857 ± 0.025	0.941	1.5 ± 0.7	1.5 ± 0.7
OBIII	0.122 ± 0.018	0.822 ± 0.024	0.930	-1.05 ± 0.30	0.5 ± 0.7
OBIIId	0.47 ± 0.08	0.872 ± 0.023	0.945	4.7 ± 1.3	1.9 ± 0.7
OBIIId	0.38 ± 0.06	0.846 ± 0.023	0.951	3.2 ± 1.0	1.2 ± 0.7
OBIIId	0.36 ± 0.06	0.842 ± 0.022	0.954	2.9 ± 0.9	1.1 ± 0.6

Supplementary Table S7. Taylor’s parameters for special intervals concerning gut microbiota in the host lifestyle study (6). The healthy and quotidian periods are characterized by $\bar{V} = 0.25 \pm 0.09, \bar{\beta} = 0.777 \pm 0.025$.

Metadata	V	β	\bar{R}^2	V_{st}	β_{st}
HLS (abroad)	0.51 ± 0.06	0.820 ± 0.012	0.928	2.8 ± 0.6	1.7 ± 0.5
HLS (infection)	0.49 ± 0.08	0.828 ± 0.018	0.923	2.6 ± 0.9	2.0 ± 0.7
HLS (after infection)	0.36 ± 0.05	0.776 ± 0.015	0.922	1.1 ± 0.6	-0.0 ± 0.6

Supplementary Table S8. Rank and Rank Stability Index (RSI, as discussed in Material and Methods) over different periods for the taxa listed as *rank stability islands* regarding the gut microbiome of the individual A in the host lifestyle study (6).

Period		Genera											
name	days	<i>Actinomyces</i>		<i>Leuconostoc</i>		<i>Lachnobacterium</i>		<i>Eggerthella</i>		<i>Clostridium</i>		<i>Collinsella</i>	
		rank	RSI	rank	RSI	rank	RSI	rank	RSI	rank	RSI	rank	RSI
<i>before</i>	0 to 70	46	72.5	44	76.3	45	70.2	35	73.3	28	77.2	25	84.2
<i>abroad</i>	72 to 122	56	67.1	46	66.2	77	53.3	48	53.4	36	49.9	41	63.5
<i>returned</i>	123 to 256	44	79.3	41	69.5	31	74.2	33	77.5	34	71.6	27	81.0
<i>after</i>	257 to 364	43	79.0	39	72.2	33	68.4	30	78.5	34	76.7	26	80.4
Overall		47	76.4	43	71.0	36	69.2	35	74.1	34	70.7	28	79.5

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