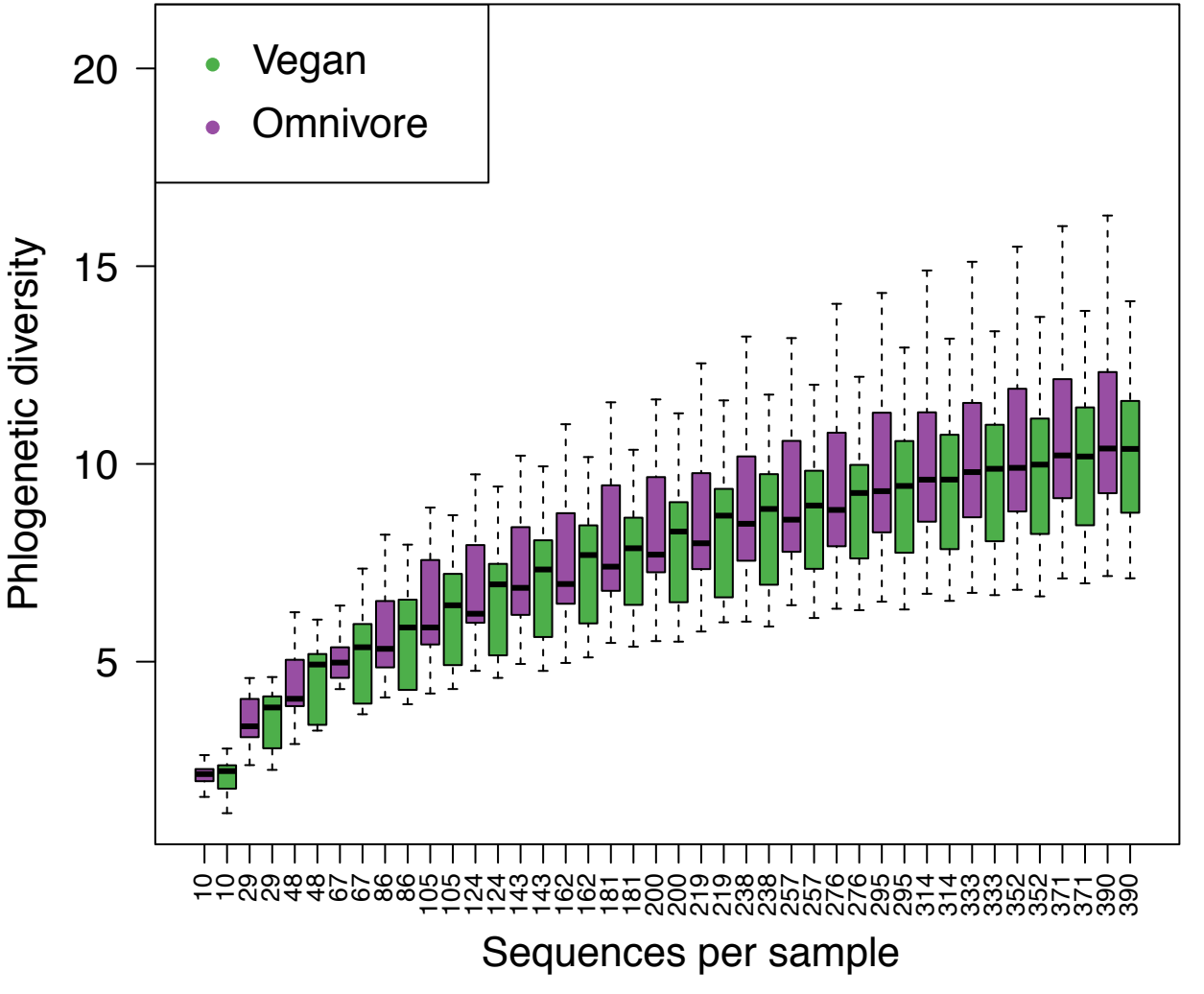
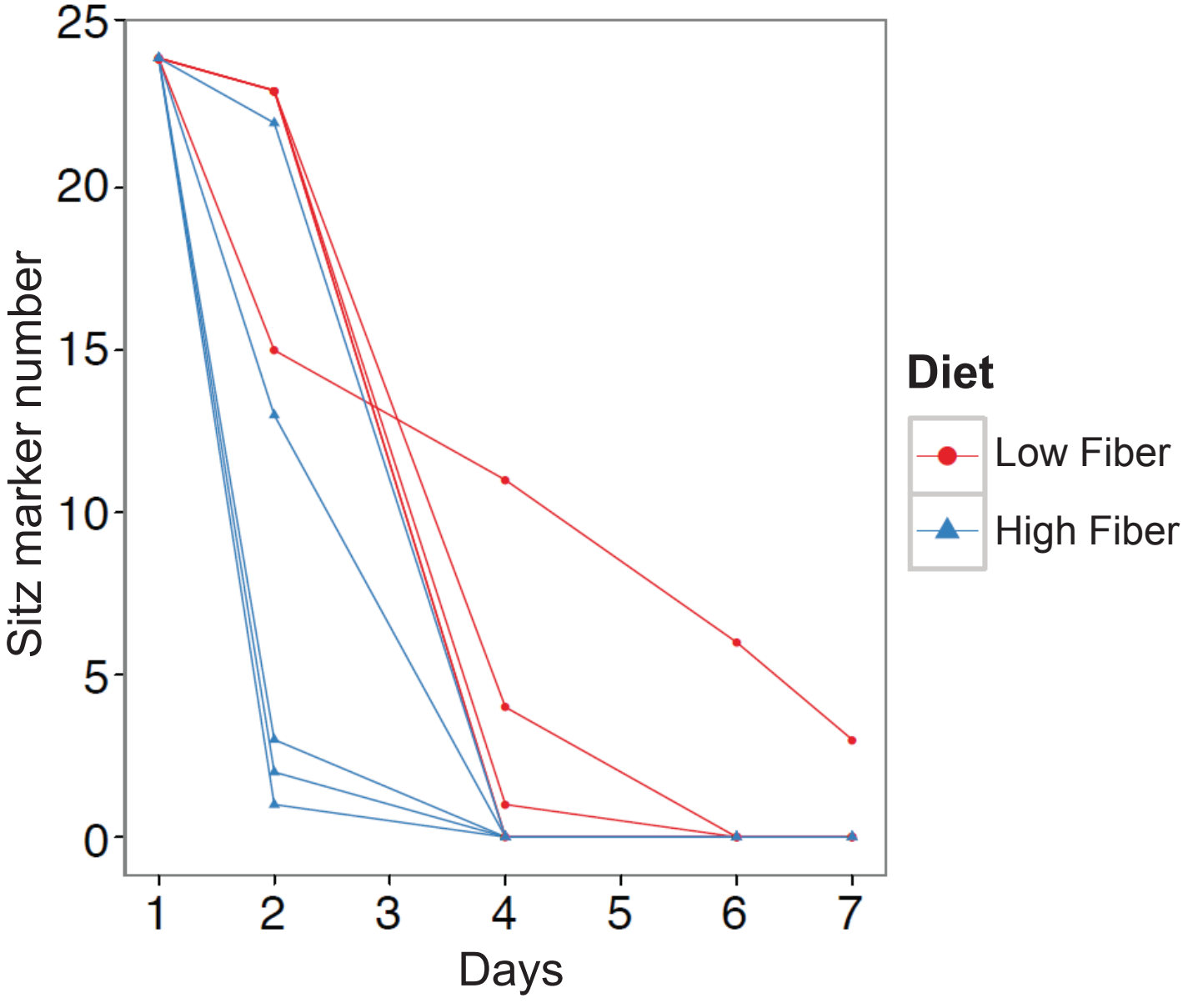
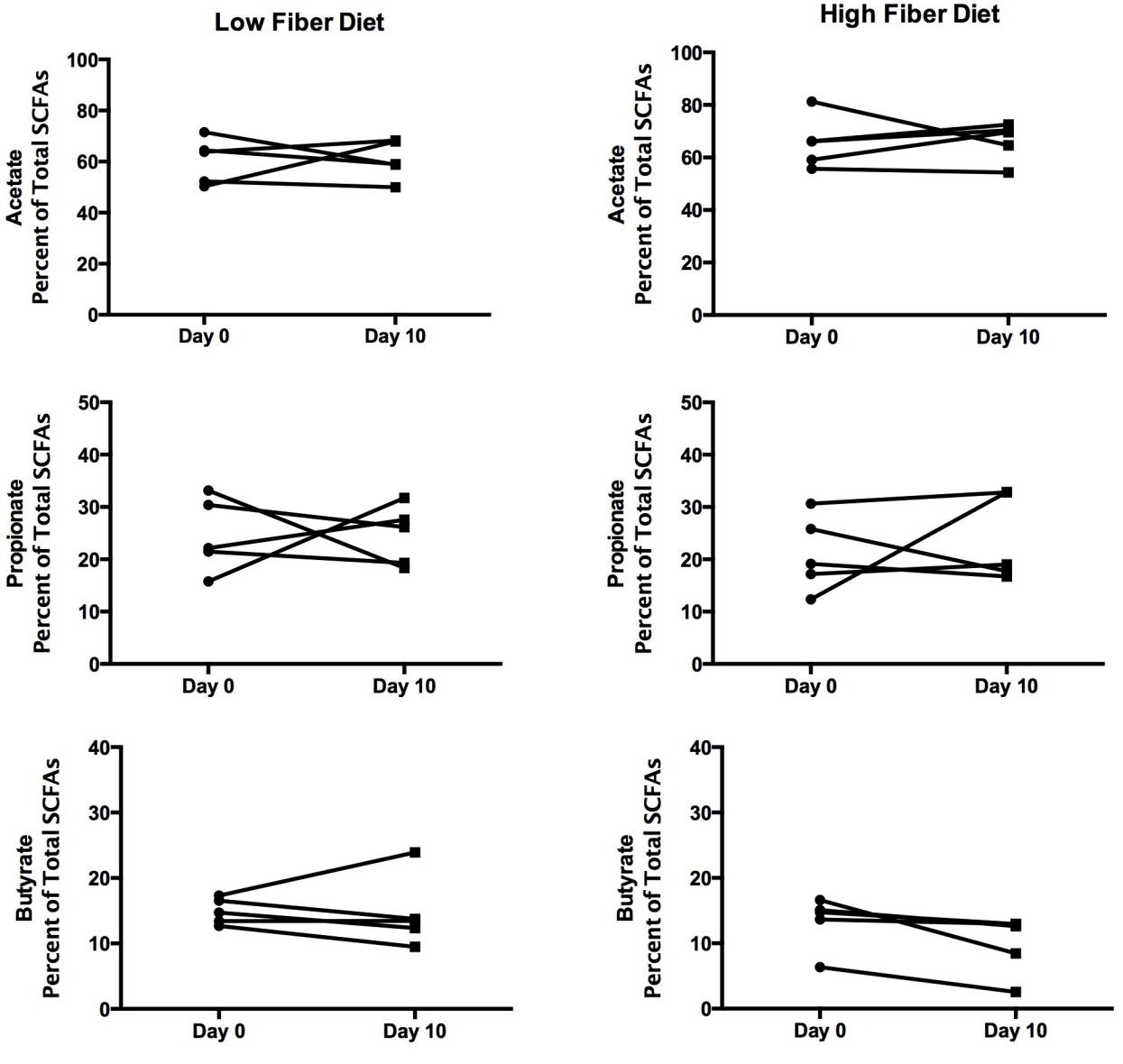

Vegan
Omnivore
Phlogenetic diversity
20
15
10
5
10 10 29 29 48 48 67 67 86 86 105 105 124 124 143 143 162 162 181 181 200 200 219 219 238 238 257 257 276 276 295 295 314 314 333 333 352 352 371 371 390 390
Sequences per sample


25
20
15
10
5
0
Sitz marker number
1
2
3
4
5
6
7
Days
Diet
Low Fiber
High Fiber


Low Fiber Diet
High Fiber Diet
Acetate
Percent of Total SCFAs
Propionate
Percent of Total SCFAs
Butyrate
Percent of Total SCFAs
Day 0
Day 10
0
10
20
30
40
50
60
80
100

## TABLE S1

| | Vegan (raw value) | | Omnivore (raw value) | | Vegan (standardized value) | | Omnivore (standardized value) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Micronutrients | Mean | SD | Mean | SD | Mean | SD | Mean | SD | P value | Q value |
| Animal Protein | 0 | 0 | 60 | 25 | -1 | 0.32 | 0.72 | 0.56 | 2.40E-10 | 3.40E-09 |
| MUFA 16:1 (palmitoleic acid) | 0.29 | 0.22 | 1.5 | 0.64 | -1 | 0.41 | 0.69 | 0.61 | 5.70E-09 | 4.10E-08 |
| SFA 16:0 (palmitic acid) | 6 | 2.3 | 16 | 7.2 | -1 | 0.49 | 0.69 | 0.56 | 2.10E-08 | 1.00E-07 |
| Cholesterol | 0 | 0 | 310 | 180 | -0.96 | 0.41 | 0.66 | 0.69 | 5.30E-08 | 1.90E-07 |
| PUFA 20:4 (arachidonic acid) | 0.0016 | 0.0014 | 0.15 | 0.082 | -0.95 | 0.31 | 0.66 | 0.74 | 1.10E-07 | 3.00E-07 |
| Total Conjugated Linoleic Acid (CLA 18:2) | 0.0038 | 0.0033 | 0.18 | 0.1 | -0.95 | 0.38 | 0.65 | 0.73 | 1.30E-07 | 3.10E-07 |
| CLA cis-9, trans-11 | 0.0018 | 0.0015 | 0.15 | 0.087 | -0.94 | 0.37 | 0.65 | 0.74 | 1.50E-07 | 3.10E-07 |
| Polyunsaturated to Saturated Fat Ratio | 1.8 | 0.44 | 0.69 | 0.4 | 0.98 | 0.61 | -0.67 | 0.55 | 5.80E-07 | 1.00E-06 |
| 3-Methylhistidine | 0 | 0 | 19 | 11 | -0.92 | 0.22 | 0.63 | 0.81 | 7.90E-07 | 1.30E-06 |
| CLA trans-10, cis-12 | 0.0016 | 0.0016 | 0.034 | 0.02 | -0.9 | 0.36 | 0.62 | 0.8 | 9.80E-07 | 1.40E-06 |
| Vegetable Protein | 79 | 23 | 28 | 10 | 1 | 0.7 | -0.72 | 0.23 | 4.40E-06 | 5.80E-06 |
| SFA 18:0 (stearic acid) | 2.5 | 1.3 | 7.2 | 3.7 | -0.9 | 0.64 | 0.62 | 0.68 | 5.70E-06 | 6.90E-06 |
| Cholesterol to Saturated Fatty Acid Index | 15 | 10 | 47 | 22 | -0.91 | 0.67 | 0.63 | 0.64 | 6.70E-06 | 7.50E-06 |
| SFA 4:0 (butyric acid) | 0.00091 | 0.003 | 0.84 | 0.62 | -0.84 | 0.38 | 0.58 | 0.87 | 8.80E- | 9.10E- |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 06 | 06 |
| Retinol | 91 | 120 | 380 | 210 | -0.83 | 0.39 | 0.57 | 0.88 | 1.20E-05 | 1.20E-05 |
| Phytic Acid | 1800 | 780 | 700 | 400 | 0.92 | 0.81 | -0.63 | 0.51 | 4.20E-05 | 3.80E-05 |
| MUFA 14:1 (myristoleic acid) | 0.00042 | 0.0011 | 0.06 | 0.045 | -0.79 | 0.21 | 0.54 | 0.96 | 5.10E-05 | 4.40E-05 |
| SFA 6:0 (caproic acid) | 0.044 | 0.062 | 0.44 | 0.33 | -0.77 | 0.4 | 0.53 | 0.94 | 6.50E-05 | 5.20E-05 |
| Magnesium | 470 | 160 | 300 | 110 | 0.85 | 0.78 | -0.59 | 0.65 | 7.20E-05 | 5.50E-05 |
| Methionine | 1.1 | 0.38 | 2 | 0.79 | -0.8 | 0.67 | 0.55 | 0.8 | 7.60E-05 | 5.50E-05 |
| Lactose | 0.15 | 0.22 | 8.6 | 6.7 | -0.76 | 0.17 | 0.52 | 1 | 1.10E-04 | 7.70E-05 |
| % Calories from SFA | 6 | 3.7 | 12 | 3 | -0.83 | 0.82 | 0.57 | 0.65 | 1.40E-04 | 9.40E-05 |
| Copper | 2.3 | 0.97 | 1.4 | 0.6 | 0.86 | 0.86 | -0.59 | 0.57 | 1.60E-04 | 9.80E-05 |
| TRANS 16:1 (trans-hexadecenoic acid) | 0.0047 | 0.0083 | 0.039 | 0.029 | -0.74 | 0.25 | 0.51 | 1 | 1.60E-04 | 9.80E-05 |
| Soluble Dietary Fiber | 11 | 5.2 | 5.3 | 2.1 | 0.87 | 0.88 | -0.6 | 0.53 | 1.80E-04 | 1.00E-04 |
| Natural Folate (food folate) | 450 | 200 | 190 | 64 | 0.91 | 0.92 | -0.63 | 0.37 | 1.80E-04 | 1.00E-04 |
| Lysine | 3.4 | 1.4 | 5.9 | 2.3 | -0.76 | 0.68 | 0.52 | 0.85 | 2.20E-04 | 1.20E-04 |
| Vitamin D (calciferol) | 1.1 | 1.3 | 4.3 | 2.5 | -0.72 | 0.46 | 0.5 | 0.97 | 2.40E-04 | 1.30E-04 |
| Manganese | 7 | 3 | 3.4 | 2 | 0.79 | 0.81 | -0.54 | 0.72 | 2.80E-04 | 1.30E-04 |
| Daidzein | 22 | 13 | 0.28 | 0.38 | 0.95 | 0.96 | -0.65 | 0.075 | 2.50E-04 | 1.30E-04 |
| Pinitol | 0.22 | 0.15 | 0.0068 | 0.012 | 0.93 | 0.97 | -0.64 | 0.19 | 2.90E-04 | 1.30E-04 |
| Pectins | 4.3 | 2 | 1.8 | 1 | 0.85 | 0.93 | -0.58 | 0.52 | 3.70E- | 1.70E- |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 04 | 04 |
| Genistein | 29 | 19 | 0.34 | 0.33 | 0.92 | 1 | -0.63 | 0.053 | 5.00E-04 | 2.20E-04 |
| Glycitein | 5.5 | 3.8 | 0.016 | 0.031 | 0.91 | 1 | -0.62 | 0.052 | 6.10E-04 | 2.60E-04 |
| Beta-Tocopherol | 0.77 | 0.38 | 0.41 | 0.28 | 0.72 | 0.8 | -0.49 | 0.82 | 9.50E-04 | 3.90E-04 |
| Total Dietary Fiber | 35 | 18 | 18 | 8.1 | 0.78 | 0.96 | -0.53 | 0.61 | 1.10E-03 | 4.20E-04 |
| Total Saturated Fatty Acids (SFA) | 15 | 10 | 31 | 15 | -0.74 | 0.92 | 0.51 | 0.7 | 1.20E-03 | 4.90E-04 |
| % Calories from Fat | 26 | 5.7 | 34 | 4.8 | -0.77 | 0.99 | 0.53 | 0.58 | 1.30E-03 | 5.10E-04 |
| Maltose | 5.5 | 2.6 | 3 | 2.1 | 0.69 | 0.82 | -0.47 | 0.83 | 1.60E-03 | 5.90E-04 |
| Total Fat | 64 | 21 | 86 | 39 | -0.74 | 0.95 | 0.51 | 0.68 | 1.70E-03 | 6.10E-04 |
| Insoluble Dietary Fiber | 24 | 13 | 12 | 6.5 | 0.71 | 0.99 | -0.49 | 0.67 | 3.00E-03 | 1.10E-03 |
| Iron | 22 | 8.9 | 15 | 5.7 | 0.69 | 0.98 | -0.47 | 0.72 | 3.60E-03 | 1.20E-03 |
| % Calories from Carbohydrate | 56 | 7.9 | 46 | 8.4 | 0.64 | 0.91 | -0.44 | 0.82 | 4.90E-03 | 1.70E-03 |
| Total Carbohydrate | 300 | 98 | 250 | 81 | 0.59 | 0.87 | -0.4 | 0.89 | 9.10E-03 | 3.00E-03 |
| Total Folate | 690 | 440 | 370 | 120 | 0.69 | 1.2 | -0.48 | 0.44 | 9.30E-03 | 3.00E-03 |
| PUFA 22:5 (docosapentaenoic acid [DPA]) | 3.00E-05 | 1.00E-04 | 0.037 | 0.051 | -0.52 | 0.13 | 0.36 | 1.2 | 9.60E-03 | 3.00E-03 |
| PUFA 22:6 (docosahexaenoic acid [DHA]) | 0.0014 | 0.0033 | 0.18 | 0.25 | -0.52 | 0.2 | 0.36 | 1.2 | 9.60E-03 | 3.00E-03 |
| Oxalic Acid | 400 | 250 | 180 | 99 | 0.68 | 1.2 | -0.47 | 0.43 | 1.10E-02 | 3.30E-03 |
| Potassium | 3000 | 1000 | 2400 | 590 | 0.61 | 1 | -0.42 | 0.75 | 1.20E-02 | 3.60E-03 |
| Alanine | 3.1 | 0.97 | 4.2 | 1.7 | -0.54 | 0.75 | 0.37 | 1 | 1.20E- | 3.60E- |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 02 | 03 |
| Vitamin B-12 (cobalamin) | 2.4 | 3.6 | 5.4 | 2.5 | -0.57 | 0.94 | 0.39 | 0.86 | 1.30E-02 | 3.80E-03 |
| Vitamin C (ascorbic acid) | 110 | 53 | 62 | 43 | 0.57 | 0.97 | -0.39 | 0.84 | 1.50E-02 | 4.20E-03 |
| Mannitol | 0.5 | 0.42 | 0.17 | 0.12 | 0.64 | 1.2 | -0.44 | 0.48 | 1.60E-02 | 4.40E-03 |
| PUFA 20:5 (eicosapentaenoic acid [EPA]) | 0.00045 | 0.00082 | 0.086 | 0.14 | -0.46 | 0.22 | 0.32 | 1.2 | 2.30E-02 | 6.00E-03 |
| Total Alpha-Tocopherol Equivalents | 21 | 19 | 8.9 | 3.9 | 0.62 | 1.3 | -0.43 | 0.38 | 2.40E-02 | 6.20E-03 |
| Histidine | 1.8 | 0.62 | 2.4 | 0.93 | -0.51 | 0.9 | 0.35 | 0.93 | 2.40E-02 | 6.20E-03 |
| Vitamin E (Total Alpha-Tocopherol) | 17 | 15 | 7.4 | 3 | 0.6 | 1.3 | -0.42 | 0.37 | 2.90E-02 | 7.00E-03 |
| Dietary Folate Equivalents | 850 | 620 | 500 | 180 | 0.59 | 1.3 | -0.4 | 0.49 | 2.90E-02 | 7.00E-03 |
| Vitamin E (International Units) (IU) | 27 | 24 | 11 | 4.5 | 0.61 | 1.3 | -0.42 | 0.37 | 2.70E-02 | 7.00E-03 |
| Synthetic Alpha-Tocopherol (all rac-alpha-tocopherol or dl-alpha-tocopherol) | 4.1 | 6.3 | 0 | 0 | 0.6 | 1.3 | -0.41 | 0.38 | 2.90E-02 | 7.10E-03 |
| SFA 14:0 (myristic acid) | 1.4 | 1.9 | 3 | 1.8 | -0.52 | 1.1 | 0.36 | 0.8 | 3.30E-02 | 7.60E-03 |
| Natural Alpha-Tocopherol (RRR-alpha-tocopherol or d-alpha-tocopherol) | 15 | 12 | 7.4 | 3 | 0.59 | 1.3 | -0.41 | 0.38 | 3.30E-02 | 7.60E-03 |
| Choline | 260 | 110 | 330 | 130 | -0.47 | 0.82 | 0.32 | 1 | 3.40E-02 | 7.70E-03 |
| Threonine | 2.6 | 0.87 | 3.4 | 1.4 | -0.46 | 0.86 | 0.32 | 0.99 | 3.90E-02 | 8.50E-03 |
| Valine | 3.5 | 1.2 | 4.5 | 1.7 | -0.48 | 0.96 | 0.33 | 0.91 | 3.90E-02 | 8.50E-03 |
| % Calories from Protein | 14 | 3.8 | 17 | 3.8 | -0.48 | 0.92 | 0.33 | 0.94 | 3.80E-02 | 8.50E-03 |
| MUFA 20:1 (gadoleic acid) | 0.74 | 0.68 | 0.26 | 0.16 | 0.57 | 1.4 | -0.39 | 0.33 | 4.10E- | 8.60E- |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 02 | 03 |
| Available Carbohydrate | 260 | 83 | 230 | 77 | 0.46 | 0.87 | -0.32 | 0.98 | 4.00E-02 | 8.60E-03 |
| Isoleucine | 3.1 | 1.1 | 4 | 1.5 | -0.48 | 0.98 | 0.33 | 0.91 | 4.20E-02 | 8.80E-03 |
| Tyrosine | 2.3 | 0.81 | 3.1 | 1.2 | -0.49 | 1 | 0.33 | 0.87 | 4.20E-02 | 8.80E-03 |
| Omega-3 Fatty Acids | 1.4 | 0.58 | 2.3 | 1.8 | -0.42 | 0.66 | 0.29 | 1.1 | 4.60E-02 | 9.30E-03 |
| Galactose | 0.12 | 0.056 | 0.69 | 1 | -0.39 | 0.049 | 0.27 | 1.2 | 4.90E-02 | 9.80E-03 |
| Riboflavin (vitamin B2) | 1.6 | 0.72 | 2 | 0.64 | -0.46 | 1 | 0.32 | 0.88 | 5.10E-02 | 1.00E-02 |
| Niacin (vitamin B3) | 20 | 6.5 | 24 | 7.5 | -0.42 | 0.82 | 0.29 | 1 | 5.60E-02 | 1.10E-02 |
| Water | 3200 | 1200 | 2500 | 830 | 0.46 | 1 | -0.32 | 0.88 | 5.50E-02 | 1.10E-02 |
| Leucine | 5.5 | 1.9 | 6.9 | 2.7 | -0.43 | 0.96 | 0.29 | 0.94 | 6.60E-02 | 1.20E-02 |
| Lutein + Zeaxanthin | 5900 | 6400 | 1800 | 1800 | 0.51 | 1.4 | -0.35 | 0.4 | 6.70E-02 | 1.20E-02 |
| Niacin Equivalents | 36 | 7.5 | 41 | 13 | -0.37 | 0.35 | 0.26 | 1.2 | 6.40E-02 | 1.20E-02 |
| Starch | 150 | 67 | 130 | 54 | 0.43 | 1 | -0.3 | 0.9 | 7.00E-02 | 1.30E-02 |
| Selenium | 110 | 32 | 130 | 49 | -0.37 | 0.61 | 0.25 | 1.1 | 7.90E-02 | 1.40E-02 |
| Xylitol | 0.025 | 0.028 | 0.0094 | 0.0088 | 0.48 | 1.3 | -0.33 | 0.55 | 7.50E-02 | 1.40E-02 |
| Vitamin K (phylloquinone) | 270 | 290 | 110 | 89 | 0.47 | 1.4 | -0.32 | 0.46 | 9.10E-02 | 1.60E-02 |
| Biochanin A | 1.2 | 2 | 0.0063 | 0.025 | 0.49 | 1.5 | -0.34 | 0.018 | 9.10E-02 | 1.60E-02 |
| SFA 20:0 (arachidic acid) | 0.16 | 0.075 | 0.12 | 0.074 | 0.45 | 1.3 | -0.31 | 0.58 | 1.00E-01 | 1.70E-02 |
| Zinc | 9.6 | 4.8 | 12 | 5.1 | -0.36 | 0.8 | 0.25 | 1.1 | 1.10E- | 1.80E- |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 01 | 02 |
| SFA 17:0 (margaric acid) | 0.31 | 0.36 | 0.12 | 0.075 | 0.45 | 1.4 | -0.31 | 0.28 | 1.10E-01 | 1.90E-02 |
| PUFA 18:4 (parinaric acid) | 9.10E-05 | 3.00E-04 | 0.017 | 0.043 | -0.32 | 0.2 | 0.22 | 1.3 | 1.10E-01 | 1.90E-02 |
| Beta-Carotene (provitamin A carotenoid) | 5300 | 4300 | 2700 | 3400 | 0.39 | 1.1 | -0.27 | 0.86 | 1.20E-01 | 1.90E-02 |
| Beta-Carotene Equivalents (derived from provitamin A carotenoids) | 5700 | 4700 | 3000 | 3600 | 0.38 | 1.1 | -0.26 | 0.84 | 1.30E-01 | 2.00E-02 |
| Glycine | 3.1 | 0.97 | 3.8 | 1.5 | -0.35 | 0.81 | 0.24 | 1.1 | 1.20E-01 | 2.00E-02 |
| Ash | 20 | 5.3 | 19 | 6.3 | 0.33 | 0.76 | -0.23 | 1.1 | 1.30E-01 | 2.10E-02 |
| Formononetin | 0.019 | 0.044 | 0.00042 | 0.00097 | 0.42 | 1.4 | -0.29 | 0.39 | 1.40E-01 | 2.10E-02 |
| TRANS 18:2 (trans-octadecadienoic acid [linolelaidic acid]; incl. c-t, t-c, t-t) | 0.32 | 0.25 | 0.51 | 0.38 | -0.34 | 0.89 | 0.23 | 1 | 1.40E-01 | 2.20E-02 |
| Betaine | 310 | 200 | 220 | 110 | 0.39 | 1.3 | -0.27 | 0.67 | 1.40E-01 | 2.20E-02 |
| Tagatose | 0 | 0 | 0.96 | 2.4 | -0.3 | 0.31 | 0.2 | 1.3 | 1.40E-01 | 2.20E-02 |
| MUFA 18:1 (oleic acid) | 23 | 10 | 27 | 13 | -0.32 | 1.1 | 0.22 | 0.91 | 1.90E-01 | 2.80E-02 |
| SFA 12:0 (lauric acid) | 3.4 | 4.8 | 1.4 | 1.9 | 0.36 | 1.4 | -0.24 | 0.54 | 2.00E-01 | 2.90E-02 |
| SFA 22:0 (behenic acid) | 0.13 | 0.13 | 0.076 | 0.068 | 0.35 | 1.3 | -0.24 | 0.65 | 1.90E-01 | 2.90E-02 |
| PUFA 18:3 (linolenic acid) | 1.4 | 0.58 | 2 | 1.9 | -0.28 | 0.76 | 0.19 | 1.1 | 2.00E-01 | 2.90E-02 |
| % Calories from MUFA | 10 | 2.9 | 12 | 2.2 | -0.33 | 1.2 | 0.23 | 0.79 | 2.00E-01 | 2.90E-02 |
| Glycemic Load (glucose reference) | 150 | 52 | 140 | 51 | 0.3 | 1 | -0.21 | 0.94 | 2.10E-01 | 2.90E-02 |
| Glycemic Load (bread reference) | 220 | 75 | 190 | 73 | 0.3 | 1 | -0.21 | 0.94 | 2.10E-01 | 2.90E-02 |
| Sorbitol | 0.61 | 1.2 | 0.15 | 0.26 | 0.35 | 1.4 | -0.24 | 0.44 | 2.10E- | 3.00E- |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 01 | 02 |
| Total Vitamin A Activity (International Units) (IU) | 9800 | 8000 | 6300 | 6200 | 0.31 | 1.2 | -0.21 | 0.85 | 2.20E-01 | 3.10E-02 |
| Thiamin (vitamin B1) | 1.9 | 0.89 | 1.7 | 0.6 | 0.3 | 1.2 | -0.21 | 0.8 | 2.40E-01 | 3.20E-02 |
| Coumestrol | 0.013 | 0.026 | 0.18 | 0.56 | -0.23 | 0.13 | 0.15 | 1.3 | 2.60E-01 | 3.50E-02 |
| SFA 10:0 (capric acid) | 0.44 | 0.61 | 0.69 | 0.47 | -0.28 | 1.2 | 0.19 | 0.8 | 2.80E-01 | 3.70E-02 |
| Total Protein | 79 | 23 | 89 | 33 | -0.23 | 0.99 | 0.16 | 1 | 3.20E-01 | 4.30E-02 |
| Total Monounsaturated Fatty Acids (MUFA) | 26 | 9.8 | 29 | 13 | -0.24 | 1.1 | 0.17 | 0.94 | 3.20E-01 | 4.30E-02 |
| Sodium | 3300 | 1100 | 3800 | 1700 | -0.21 | 0.99 | 0.15 | 1 | 3.70E-01 | 4.70E-02 |
| Alpha-Carotene (provitamin A carotenoid) | 740 | 1100 | 410 | 700 | 0.24 | 1.3 | -0.16 | 0.77 | 3.60E-01 | 4.70E-02 |
| Synthetic Folate (folic acid) | 240 | 260 | 180 | 95 | 0.25 | 1.4 | -0.17 | 0.65 | 3.60E-01 | 4.70E-02 |
| Fructose | 17 | 9.1 | 22 | 19 | -0.17 | 0.52 | 0.12 | 1.2 | 4.00E-01 | 5.10E-02 |
| % Calories from PUFA | 7.7 | 1.5 | 7.1 | 2.8 | 0.19 | 0.85 | -0.13 | 1.1 | 4.10E-01 | 5.10E-02 |
| Sucrose | 38 | 22 | 32 | 22 | 0.2 | 1 | -0.14 | 0.99 | 4.10E-01 | 5.20E-02 |
| Vitamin B-6 (pyridoxine, pyridoxyl, & pyridoxamine) | 2 | 1.5 | 1.8 | 0.56 | 0.22 | 1.4 | -0.15 | 0.58 | 4.30E-01 | 5.20E-02 |
| MUFA 22:1 (erucic acid) | 0.036 | 0.054 | 0.07 | 0.16 | -0.17 | 0.48 | 0.11 | 1.2 | 4.20E-01 | 5.20E-02 |
| Inositol | 0.14 | 0.094 | 0.11 | 0.13 | 0.18 | 0.76 | -0.12 | 1.1 | 4.20E-01 | 5.20E-02 |
| Delta-Tocopherol | 3.6 | 2.4 | 3.1 | 2.9 | 0.18 | 0.97 | -0.12 | 1 | 4.50E-01 | 5.50E-02 |
| Added Sugars | 49 | 24 | 60 | 47 | -0.16 | 0.64 | 0.11 | 1.2 | 4.60E-01 | 5.50E-02 |
| Erythritol | 0.00076 | 0.0014 | 4.00E- | 0.00088 | 0.19 | 1.3 | -0.13 | 0.79 | 4.60E- | 5.50E- |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 04 | | | | | | 01 | 02 |
| Lycopene | 8100 | 8600 | 6000 | 5500 | 0.18 | 1.2 | -0.13 | 0.81 | 4.80E-01 | 5.70E-02 |
| Alcohol | 15 | 27 | 9.5 | 17 | 0.16 | 1.3 | -0.11 | 0.78 | 5.30E-01 | 6.00E-02 |
| Glucose | 19 | 8.8 | 22 | 15 | -0.13 | 0.61 | 0.09 | 1.2 | 5.40E-01 | 6.00E-02 |
| Calcium | 840 | 280 | 930 | 430 | -0.14 | 0.69 | 0.097 | 1.2 | 5.20E-01 | 6.00E-02 |
| Aspartic Acid | 6.9 | 2.6 | 7.5 | 2.8 | -0.15 | 1.1 | 0.1 | 0.96 | 5.40E-01 | 6.00E-02 |
| Glutamic Acid | 18 | 6.1 | 17 | 6.3 | 0.17 | 1.2 | -0.12 | 0.83 | 5.10E-01 | 6.00E-02 |
| Proline | 5.5 | 2 | 6.1 | 2.4 | -0.16 | 1.2 | 0.11 | 0.87 | 5.30E-01 | 6.00E-02 |
| Total Trans-Fatty Acids (TRANS) | 2.4 | 2.1 | 3 | 2.1 | -0.17 | 1.2 | 0.11 | 0.89 | 5.10E-01 | 6.00E-02 |
| Beta-Cryptoxanthin (provitamin A carotenoid) | 99 | 80 | 150 | 260 | -0.14 | 0.63 | 0.093 | 1.2 | 5.30E-01 | 6.00E-02 |
| % Calories from Alcohol | 3.9 | 6.7 | 2.6 | 4.4 | 0.15 | 1.3 | -0.1 | 0.81 | 5.60E-01 | 6.10E-02 |
| Total Vitamin A Activity (Retinol Equivalents) | 1000 | 810 | 880 | 670 | 0.15 | 1.2 | -0.1 | 0.87 | 5.50E-01 | 6.10E-02 |
| SFA 8:0 (caprylic acid) | 0.55 | 0.77 | 0.41 | 0.34 | 0.16 | 1.4 | -0.11 | 0.61 | 5.70E-01 | 6.20E-02 |
| Pantothenic Acid | 4.5 | 1.8 | 4.8 | 1.6 | -0.12 | 0.89 | 0.081 | 1.1 | 6.10E-01 | 6.50E-02 |
| Caffeine | 74 | 74 | 90 | 78 | -0.12 | 0.92 | 0.081 | 1.1 | 6.10E-01 | 6.50E-02 |
| TRANS 18:1 (trans-octadecenoic acid [elaidic acid]) | 2 | 1.8 | 2.4 | 1.7 | -0.13 | 1.2 | 0.087 | 0.87 | 6.20E-01 | 6.50E-02 |
| Total Sugars | 80 | 28 | 88 | 50 | -0.11 | 0.58 | 0.073 | 1.2 | 6.20E-01 | 6.50E-02 |
| Glycemic Index (glucose reference) | 58 | 8.2 | 59 | 3.3 | -0.14 | 1.4 | 0.097 | 0.6 | 6.10E-01 | 6.50E-02 |
| Glycemic Index (bread reference) | 82 | 12 | 84 | 4.8 | -0.14 | 1.4 | 0.097 | 0.6 | 6.10E- | 6.50E- |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 01 | 02 |
| Tryptophan | 0.95 | 0.32 | 1 | 0.38 | -0.11 | 1.1 | 0.073 | 0.94 | 6.70E-01 | 6.90E-02 |
| Serine | 3.7 | 1.2 | 4 | 1.5 | -0.099 | 1.2 | 0.068 | 0.89 | 7.00E-01 | 7.10E-02 |
| Nitrogen | 13 | 3.8 | 14 | 5.2 | -0.096 | 1.1 | 0.066 | 0.98 | 6.90E-01 | 7.10E-02 |
| Acesulfame Potassium | 2.9 | 9.5 | 1.8 | 5.1 | 0.091 | 1.3 | -0.062 | 0.72 | 7.40E-01 | 7.40E-02 |
| Gamma-Tocopherol | 13 | 6.3 | 13 | 9.7 | 0.072 | 0.86 | -0.05 | 1.1 | 7.50E-01 | 7.50E-02 |
| Total Vitamin A Activity (Retinol Activity Equivalents) | 570 | 420 | 630 | 390 | -0.08 | 1.2 | 0.055 | 0.91 | 7.50E-01 | 7.50E-02 |
| Phosphorus | 1200 | 400 | 1300 | 480 | -0.057 | 0.62 | 0.039 | 1.2 | 7.90E-01 | 7.70E-02 |
| Cystine | 1.3 | 0.44 | 1.3 | 0.52 | 0.068 | 1.1 | -0.047 | 0.97 | 7.80E-01 | 7.70E-02 |
| Arginine | 4.7 | 1.8 | 4.7 | 1.8 | 0.065 | 1.2 | -0.044 | 0.9 | 8.00E-01 | 7.70E-02 |
| Energy (kj) | 8800 | 2300 | 9000 | 3000 | -0.058 | 0.86 | 0.04 | 1.1 | 8.00E-01 | 7.70E-02 |
| Maltitol | 0.00012 | 4.00E-04 | 0.00017 | 0.00052 | -0.058 | 0.87 | 0.04 | 1.1 | 8.00E-01 | 7.70E-02 |
| PUFA 18:2 (linoleic acid) | 16 | 5.2 | 16 | 11 | 0.039 | 0.69 | -0.026 | 1.2 | 8.60E-01 | 8.20E-02 |
| Total Polyunsaturated Fatty Acids (PUFA) | 18 | 5.6 | 19 | 13 | -0.035 | 0.68 | 0.024 | 1.2 | 8.70E-01 | 8.30E-02 |
| Phenylalanine | 3.7 | 1.3 | 3.9 | 1.4 | -0.035 | 1.2 | 0.024 | 0.87 | 8.90E-01 | 8.30E-02 |
| Aspartame | 15 | 49 | 12 | 33 | 0.039 | 1.3 | -0.027 | 0.81 | 8.80E-01 | 8.30E-02 |

| Table S2 | Wilcoxon rank sum test | | Fisher's exact test | |
|---|---|---|---|---|
| | pvalue | qvalue | pvalue | qvalue |
| Firmicutes__Ruminococcus_ | 0.004 | 0.200 | 0.002 | 0.190 |
| Firmicutes_rc4_4 | 0.011 | 0.200 | 0.014 | 0.300 |
| Firmicutes_Faecalibacterium | 0.012 | 0.200 | 0.180 | 1.000 |
| Firmicutes_Holdemania | 0.013 | 0.200 | 0.014 | 0.300 |
| Firmicutes_Dialister | 0.014 | 0.200 | 0.009 | 0.300 |
| Firmicutes_Oscillospira | 0.015 | 0.200 | 1.000 | 1.000 |
| Firmicutes_Roseburia | 0.020 | 0.210 | 0.230 | 1.000 |
| TM7_TM7_3 | 0.022 | 0.210 | 0.039 | 0.540 |
| Bacteroidetes_Parabacteroides | 0.025 | 0.210 | 0.600 | 1.000 |
| Actinobacteria_Actinomyces | 0.027 | 0.210 | 0.045 | 0.540 |
| Proteobacteria_RF32 | 0.042 | 0.300 | 0.039 | 0.540 |
| Proteobacteria_Oxalobacter | 0.050 | 0.320 | 0.072 | 0.760 |
| Firmicutes_SMB53 | 0.053 | 0.320 | 0.100 | 0.800 |
| Proteobacteria_Haemophilus | 0.061 | 0.340 | 0.090 | 0.760 |
| Firmicutes_Ruminococcaceae | 0.093 | 0.480 | 1.000 | 1.000 |
| Firmicutes_Clostridiaceae | 0.110 | 0.530 | 0.240 | 1.000 |
| Actinobacteria_Collinsella | 0.130 | 0.530 | 0.160 | 1.000 |
| Firmicutes_Mogibacterium | 0.140 | 0.530 | 0.210 | 1.000 |
| Firmicutes_Peptococcaceae | 0.140 | 0.530 | 0.210 | 1.000 |
| Proteobacteria_Enterobacteriaceae | 0.140 | 0.530 | 0.210 | 1.000 |
| Cyanobacteria_YS2 | 0.150 | 0.560 | 0.180 | 1.000 |
| Firmicutes_Clostridiales | 0.190 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Megasphaera | 0.190 | 0.560 | 0.490 | 1.000 |
| Firmicutes__Eubacterium_ | 0.200 | 0.560 | 0.270 | 1.000 |
| Firmicutes_Peptostreptococcaceae | 0.210 | 0.560 | 0.320 | 1.000 |
| Proteobacteria_Bilophila | 0.240 | 0.560 | 0.340 | 1.000 |
| Proteobacteria_Sutterella | 0.240 | 0.560 | 0.090 | 0.760 |
| Bacteroidetes_Butyricimonas | 0.280 | 0.560 | 0.300 | 1.000 |
| Firmicutes_Lactobacillus | 0.290 | 0.560 | 0.320 | 1.000 |
| Firmicutes_Megamonas | 0.290 | 0.560 | 0.320 | 1.000 |
| Actinobacteria_Corynebacterium | 0.320 | 0.560 | 0.470 | 1.000 |
| Bacteria | 0.320 | 0.560 | 0.470 | 1.000 |
| Firmicutes | 0.320 | 0.560 | 0.470 | 1.000 |
| Firmicutes_EtOH8 | 0.320 | 0.560 | 0.470 | 1.000 |
| Firmicutes_SHA_98 | 0.320 | 0.560 | 0.470 | 1.000 |
| Fusobacteria_Leptotrichia | 0.320 | 0.560 | 0.470 | 1.000 |
| TM7_F16 | 0.320 | 0.560 | 0.470 | 1.000 |
| Verrucomicrobia_Akkermansia | 0.320 | 0.560 | 0.470 | 1.000 |
| Bacteroidetes_Bacteroides | 0.330 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Clostridium | 0.330 | 0.560 | 0.660 | 1.000 |

| | | | | |
|---|---|---|---|---|
| Firmicutes_Lachnospiraceae | 0.350 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Phascolarctobacterium | 0.360 | 0.560 | 0.240 | 1.000 |
| Firmicutes_Streptococcus | 0.380 | 0.560 | 0.470 | 1.000 |
| Bacteroidetes__Paraprevotellaceae_ | 0.390 | 0.560 | 1.000 | 1.000 |
| Bacteroidetes__Prevotella_ | 0.390 | 0.560 | 1.000 | 1.000 |
| Firmicutes__Clostridium_ | 0.390 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Bulleidia | 0.390 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Catenibacterium | 0.390 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Christensenella | 0.390 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Enterococcus | 0.390 | 0.560 | 1.000 | 1.000 |
| Firmicutes_Granulicatella | 0.390 | 0.560 | 1.000 | 1.000 |
| Fusobacteria_Cetobacterium | 0.390 | 0.560 | 1.000 | 1.000 |
| Proteobacteria_Succinivibrio | 0.390 | 0.560 | 1.000 | 1.000 |
| TM7_CW040 | 0.390 | 0.560 | 1.000 | 1.000 |
| Actinobacteria_Coriobacteriaceae | 0.400 | 0.570 | 0.600 | 1.000 |
| Firmicutes_Dorea | 0.430 | 0.590 | 0.320 | 1.000 |
| Firmicutes_Turicibacter | 0.430 | 0.590 | 0.440 | 1.000 |
| Bacteroidetes_Bacteroidales | 0.460 | 0.610 | 1.000 | 1.000 |
| Tenericutes_ML615J_28 | 0.540 | 0.720 | 0.640 | 1.000 |
| Firmicutes_Blautia | 0.580 | 0.750 | 1.000 | 1.000 |
| Bacteroidetes_Prevotella | 0.590 | 0.750 | 1.000 | 1.000 |
| Firmicutes_Acidaminococcus | 0.590 | 0.750 | 0.690 | 1.000 |
| Firmicutes_cc_115 | 0.600 | 0.750 | 1.000 | 1.000 |
| Firmicutes_Anaerotruncus | 0.660 | 0.810 | 1.000 | 1.000 |
| Firmicutes_Anaerostipes | 0.710 | 0.860 | 1.000 | 1.000 |
| Firmicutes_Coprobacillus | 0.720 | 0.860 | 1.000 | 1.000 |
| Firmicutes__Mogibacteriaceae_ | 0.740 | 0.860 | 0.730 | 1.000 |
| Unassigned | 0.760 | 0.860 | 1.000 | 1.000 |
| Actinobacteria_Adlercreutzia | 0.770 | 0.860 | 1.000 | 1.000 |
| Firmicutes_Erysipelotrichaceae | 0.790 | 0.860 | 1.000 | 1.000 |
| Firmicutes_Ruminococcus | 0.790 | 0.860 | 0.490 | 1.000 |
| Bacteroidetes__Barnesiellaceae_ | 0.800 | 0.860 | 0.720 | 1.000 |
| Firmicutes_Christensenellaceae | 0.840 | 0.900 | 1.000 | 1.000 |
| Bacteroidetes_Odoribacter | 0.850 | 0.900 | 1.000 | 1.000 |
| Actinobacteria_Atopobium | 0.860 | 0.900 | 1.000 | 1.000 |
| Firmicutes_Lachnospira | 0.880 | 0.910 | 0.670 | 1.000 |
| Bacteroidetes_Rikenellaceae | 0.920 | 0.920 | 0.470 | 1.000 |
| Firmicutes_Veillonella | 0.930 | 0.920 | 1.000 | 1.000 |
| Firmicutes_Coprococcus | 0.980 | 0.920 | 0.470 | 1.000 |
| Bacteroidetes_S24_7 | 1.000 | 0.920 | 1.000 | 1.000 |
| Firmicutes_Dehalobacterium | 1.000 | 0.920 | 1.000 | 1.000 |
| Firmicutes_Gemella | 1.000 | 0.920 | 1.000 | 1.000 |

| | | | | |
|---|---|---|---|---|
| Firmicutes_Gemellaceae | 1.000 | 0.920 | 1.000 | 1.000 |
| Fusobacteria_Fusobacterium | 1.000 | 0.920 | 1.000 | 1.000 |
| Proteobacteria_Campylobacter | 1.000 | 0.920 | 1.000 | 1.000 |

**Table S3.** Dietary intake of macronutrients and fecal short chain fatty acid levels in vegan-omnivore and CAFE study subjects as well as in two previously published studies comparing these parameters in residents of agrarian vs. Western societies.

| Study | Diet | Energy (kcal) † | Pro (g) † | Fat (g) † | Carb (g) † | Starch (g) † | Fiber (g) † | Sugars (g) † | Acetate (μM/g) # | Propionate (μM/g) # | Butyrate (μM/g) # |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Vegan-Omnivore | Vegan (N=11) | 2100.9 (555.9) | 79.1 (22.9) | 63.8 (20.5) | 296.9 (98.3) | 154.4 (67.0) | 35.3* (18.3) | 79.6 (27.5) | 43.9 (4.7) | 15.6 (3.0) | 14.0 (2.3) |
| | Omnivore (N=16) | 2156.6 (727.0) | 89.1 (33.0) | 86.3 (39.1) | 246.5 (81.2) | 125.2 (53.5) | 17.5 (8.1) | 87.8 (50.0) | 56.3 (5.3) | 19.3 (2.4) | 13.7 (1.4) |
| CAFE | High Fiber Low Fat (N=5) | 2511.9 (579.9) | 113.1 (25.2) | 37.0* (8.7) | 456.5* (105.5) | 96.0 (24.3) | 48.7* (10.7) | 285.3* (64.5) | 56.5 (12.0) | 18.5 (2.3) | 9.13 (2.8) |
| | Low Fiber High Fat (N=5) | 2227.7 (443.7) | 144.4 (29.2) | 94.8 (19.6) | 205.6 (38.8) | 72.5 (13.0) | 21.5 (4.0) | 103.1 (20.7) | 54.2 (11.5) | 22.1 (4.4) | 14.2 (4.7) |
| Ou (Ou et al., 2013) | Native African (N=18) | 1669* (160) | 58* (4) | 38* (3) | 282 (28) | n/a | 17 (2) | n/a | 71.1* (11.9) | 26.9* (5.6) | 16.7* (3.3) |
| | African American (N=17) | 2650 (230) | 94 (9) | 114 (11) | 312 (27) | n/a | 20 (1.5) | n/a | 26.3 (3.0) | 7.9 (1.2) | 8.5 (2.2) |
| DeFilippo (De Filippo et al., 2010) | Burkina Faso, age 2-6 y (N=11) | 996.1 | 40.2 | 31.3 | 148.7 | 134.4 | 14.3 | 0 | 34.7 (4.4) | 22.9* (7.3) | 9.3* (1.9) |
| | Italy, age 2-6 years (N=11) | 1512.7 | 66.7 | 73.9 | 137.6 | 119.2 | 8.4 | 10 | 20.9 (2.7) | 6.2 (1.2) | 2.5 (0.5) |

† Average daily consumption and standard deviation

# Mean and standard error of mean

*P<0.01, Vegans vs. Omnivores; High Fiber Low Fat vs. Low Fiber High Fat in Café; Native African vs. African American in Ou; Burkina Faso vs. Italy in De Filippo

**Table S4.** Hydrogen and methane breath testing in omnivores and vegans (PPM: parts per million).

| | **Vegans (n=12) Median (range)** | **Omnivores (n=6) Median (range)** | **Ranksum p value** |
|---|---|---|---|
| **Methane** | | | |
| Baseline (PPM) | 2 (1 - 6) | 1 (1 - 2) | 0.19 |
| Peak (PPM) | 7.5 (3 - 72) | 6.5 (4 - 10) | >0.99 |
| Time to peak (minutes) | 165 (120 - 180) | 165 (150 - 180) | 0.62 |
| **Hydrogen** | | | |
| Baseline (PPM) | 4 (0 - 23) | 2 (0 - 15) | 0.67 |
| Peak (PPM) | 54.5 (19 - 107) | 70 (34 - 123) | 0.71 |
| Time to peak (minutes) | 157.5 (90 - 180) | 165 (150 - 180) | 0.38 |
| **Ratio of peak H2 to peak CH4** | 9.1 (1.3 - 11.4) | 10.1 (8.2 - 12.3) | 0.16 |

**Table S5.** Fecal Short Chain Fatty Acid (SCFA) levels in omnivore vs. vegans as well as in the controlled feeding experiment (CAFÉ). LFD = Low fiber diet, HFD = High fiber diet, Mean (SEM).

| Study/Sample | Mean Acetate (μM/g Stool) | Mean Propionate (μM/g Stool) | Mean Butyrate (μM/g Stool) |
|---|---|---|---|
| **CAFÉ (D0 LFD)** | 51.4 (6.6) | 21.9 (5.2) | 13.3 (2.7) |
| **CAFÉ (D10 LFD)** | 54.2 (11.5) | 22.1 (4.4) | 14.2 (4.7) |
| p value | 0.84 | 0.98 | 0.87 |
| **CAFÉ (D0 HFD)** | 64.6 (11.3) | 18.9 (2.1) | 12.8 (2.8) |
| **CAFÉ (D10 HFD)** | 56.5 (12.0) | 18.5 (2.3) | 9.1 (2.8) |
| p value | 0.64 | 0.89 | 0.38 |