**Online supplemental material**

**SUPPLEMENTAL TABLE 1**

Comparison of dietary intakes throughout the course of the study in the whole cohort1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Prebiotic (n = 34)** | | | | **Placebo (n = 33)** | | | |  |
|  | **Before intervention** | | **After intervention** | | **Before intervention** | | **After intervention** | |  |
| **Dietary intake** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **P value** |
| Energy (kJ/d) | 8839.2 | 2916.4 | 9120.5 | 3067 | 9042.2 | 2800 | 8825.3 | 2284.3 | 0.963 |
| Protein (g/d) | 100.5 | 41.6 | 100.4 | 47.5 | 100.3 | 38.8 | 96.1 | 32.9 | 0.963 |
| Total fat (g/d) | 84.3 | 31.2 | 89.9 | 39.2 | 93.6 | 39.5 | 88.5 | 35.7 | 0.775 |
| Saturated fat (g/d) | 30.5 | 14.3 | 34.2 | 16.3 | 32.9 | 14.4 | 33.5 | 14.1 | 0.757 |
| Polyunsaturated fat (g/d) | 14 | 5.9 | 13.6 | 6.6 | 15.7 | 7.2 | 14 | 7.1 | 0.599 |
| Monounsaturated fat (g/d) | 32.4 | 12 | 34.3 | 17.2 | 37.2 | 18.7 | 33.2 | 14.9 | 0.642 |
| Carbohydrate (g/d) | 215.2 | 88.2 | 222.7 | 89.1 | 209.5 | 75.8 | 215.1 | 69.1 | 0.93 |
| Sugars (g/d) | 94.5 | 44.8 | 94.8 | 36.7 | 94.4 | 43.8 | 98 | 40.4 | 0.983 |
| Starch (g/d) | 118.5 | 54.3 | 125.7 | 65.2 | 113.4 | 49.2 | 115.8 | 44.5 | 0.808 |
| Dietary fibre (g/d) | 30.1 | 14.4 | 28.2 | 12.2 | 30.3 | 14 | 28 | 11.9 | 0.845 |
| Water (g/d) | 2479.5 | 1236.1 | 2467.7 | 1219.7 | 2523.8 | 1251.6 | 2525.5 | 1368 | 0.997 |
| Alcohol (g/d) | 3.8 | 10.3 | 3.2 | 7.3 | 2.9 | 7.5 | 1.9 | 3.8 | 0.779 |
| Energy from protein (%) | 19.7 | 6.1 | 18.5 | 5.4 | 19.4 | 6.8 | 18.7 | 5 | 0.814 |
| Energy from fat (%) | 35.3 | 7.3 | 35.8 | 8.9 | 37.4 | 7.8 | 36.6 | 9 | 0.733 |
| Energy from saturated fat (%) | 12.7 | 4.2 | 13.7 | 4.3 | 13.3 | 4 | 13.8 | 3.8 | 0.628 |
| Energy from carbohydrate (%) | 39.8 | 8.7 | 40.8 | 9.3 | 38.6 | 8.3 | 40.5 | 10.5 | 0.76 |
| Energy from alcohol (%) | 1.1 | 2.6 | 1 | 2.4 | 0.9 | 1.9 | 0.6 | 1.4 | 0.808 |
| Energy from fibre (%) | 2.7 | 0.9 | 2.6 | 0.9 | 2.7 | 0.9 | 2.5 | 0.8 | 0.702 |

1 One-way repeated measures ANOVA. P value <0.05 is considered significant. SD: standard deviation

**SUPPLEMENTAL TABLE 2**

Alpha diversity comparisons at baseline (before intervention), and before and after the prebiotic intervention in the low and high dietary fibre groups1

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Low dietary fibre (n=14)** | | | | | **High dietary fibre (n=20)** | | | | |  |
|  | **Before intervention** | | **After intervention** | |  | **Before intervention** | | **After intervention** | |  |  |
| **Alpha diversity index** | **Mean** | **SD** | **Mean** | **SD** | **P value#** | **Mean** | **SD** | **Mean** | **SD** | **P value#** | **P value+** |
| Observed species (OTUs) | 801.1 | 156.2 | 841.7 | 147.7 | 0.531 | 841.5 | 133.5 | 836.2 | 160.3 | 0.911 | 0.442 |
| Shannon index | 6.08 | 0.48 | 5.87 | 0.45 | 0.263 | 6.28 | 0.50 | 5.99^ | 0.47 | 0.060 | 0.261 |
| PD\_whole tree | 83.61 | 15.79 | 87.50 | 13.12 | 0.512 | 87.30 | 14.22 | 86.14 | 13.74 | 0.794 | 0.487 |
| Chao index | 5655 | 817 | 6977^ | 2300 | 0.060 | 6624 | 1640 | 5783 | 1516 | 0.100 | 0.796 |

1 Non-parametric two-sample t-test (using QIIME). Mean values are significant different between the low and high dietary fibre groups at baseline (+; before *versus* before) and from the before intervention sample within a dietary fibre group (#; before *versus* after). \*p < 0.05, ^trend towards significance (p < 0.1). SD: standard deviation

**SUPPLEMENTAL TABLE 3**

Gastrointestinal symptom differences between the placebo and prebiotic intervention phase for the whole cohort and the low and high dietary fibre groups1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Whole cohort** | | | **Low dietary fibre** | | | **High dietary fibre** | | |
|  | **Placebo (n = 33)** | **Prebiotic (n = 34)** |  | **Placebo (n = 14)** | **Prebiotic (n = 14)** |  | **Placebo (n = 19)** | **Prebiotic (n = 20)** |  |
|  | **%** | **%** | **P value** | **%** | **%** | **P value** | **%** | **%** | **P value** |
| **Mild (total)** | 79 | 79 | 1.000 | 79 | 64 | 0.687 | 79 | 89 | 0.625 |
| Nausea | 9 | 9 | 1.000 | 0 | 0 | 1.000 | 16 | 16 | 1.000 |
| Diarrhoea | 21 | 18 | 1.000 | 21 | 0 | 0.250 | 21 | 32 | 0.687 |
| Flatulence | 61 | 70 | 0.375 | 57 | 50 | 1.000 | 63 | 84 | 0.125 |
| Gurgling | 42 | 52 | 0.549 | 43 | 43 | 1.000 | 42 | 58 | 0.375 |
| Cramps | 30 | 27 | 1.000 | 43 | 14 | 0.219 | 21 | 37 | 0.375 |
| Pain | 27 | 33 | 0.754 | 14 | 21 | 1.000 | 37 | 42 | 1.000 |
| Bloating | 39 | 45 | 0.687 | 29 | 21 | 1.000 | 47 | 63 | 0.375 |
| **Moderate (total)** | 12 | 42 | **0.013** | 14 | 21 | 1.000 | 11 | 58 | **0.004** |
| Nausea | 0 | 3 | 1.000 | 0 | 7 | 1.000 | 0 | 0 | 1.000 |
| Diarrhoea | 6 | 0 | 0.500 | 7 | 0 | 1.000 | 5 | 0 | 1.000 |
| Flatulence | 3 | 30 | **0.012** | 7 | 21 | 0.625 | 0 | 37 | **0.016** |
| Gurgling | 3 | 6 | 1.000 | 0 | 0 | 1.000 | 5 | 11 | 1.000 |
| Cramps | 0 | 3 | 1.000 | 0 | 0 | 1.000 | 0 | 5 | 1.000 |
| Pain | 0 | 15 | 0.062 | 0 | 0 | 1.000 | 0 | 26 | 0.062 |
| Bloating | 3 | 12 | 0.375 | 0 | 7 | 1.000 | 5 | 16 | 0.625 |
| **Severe (total)** | 0 | 6 | 0.500 | 0 | 7 | 1.000 | 0 | 5 | 1.000 |
| Nausea | 0 | 0 | 1.000 | 0 | 0 | 1.000 | 0 | 0 | 1.000 |
| Diarrhoea | 0 | 3 | 1.000 | 0 | 0 | 1.000 | 0 | 5 | 1.000 |
| Flatulence | 0 | 3 | 1.000 | 0 | 7 | 1.000 | 0 | 0 | 1.000 |
| Gurgling | 0 | 3 | 1.000 | 0 | 0 | 1.000 | 0 | 5 | 1.000 |
| Cramps | 0 | 0 | 1.000 | 0 | 0 | 1.000 | 0 | 0 | 1.000 |
| Pain | 0 | 0 | 1.000 | 0 | 0 | 1.000 | 0 | 0 | 1.000 |
| Bloating | 0 | 0 | 1.000 | 0 | 0 | 1.000 | 0 | 0 | 1.000 |

1McNemar test. Significant results (p < 0.05) are in **bold**. %: the percentage of participants who experienced mild (nagging or annoying), moderate (strong negative influence on daily living) and severe (disabling) gastrointestinal symptoms at least once during the placebo and prebiotic intervention phases. SD: standard deviation

**SUPPLEMENTAL TABLE 4**

Appetite rating (fullness, hunger, much [how much can you eat], satisfaction ratings using an 100 mm anchored visual analogue scale) changes 30 mins before and 30 mins after breakfast, lunch and dinner during the placebo and prebiotic intervention phases in the whole cohort1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Placebo (n = 33)** | | | | **Prebiotic (n = 34)** | | | |
|  | **Before intervention** | | **After intervention** | | **Before intervention** | | **After intervention** | |
|  | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Before Breakfast** | | | | | | | | |
| Fullness | 31.7 | 14.0 | 31.2 | 14.1 | 31.0 | 18.4 | 31.1 | 17.4 |
| Hunger | 52.1 | 17.3 | 53.3 | 20.0 | 53.2 | 19.9 | 50.2 | 22.1 |
| Much | 59.2 | 16.4 | 58.7 | 17.6 | 58.1 | 19.3 | 57.1 | 18.2 |
| Satisfaction | 34.4 | 12.2 | 34.4 | 14.5 | 37.0 | 17.9 | 35.5 | 18.8 |
| **After Breakfast** | | | | | | | | |
| Fullness | 70.7 | 13.0 | 71.4 | 15.9 | 68.3 | 14.7 | 70.6 | 19.2 |
| Hunger | 21.1 | 13.5 | 20.2 | 13.1 | 23.3 | 15.6 | 20.3 | 14.2 |
| Much | 30.3 | 15.0 | 28.1 | 15.8 | 28.4 | 16.4 | 27.0 | 15.2 |
| Satisfaction | 72.5 | 12.6 | 73.8 | 15.3 | 70.3 | 15.3 | 71.1 | 18.1 |
| **Before Lunch** | | | | | | | | |
| Fullness | 32.7 | 13.2 | 33.1 | 16.4 | 30.4 | 14.3 | 30.1 | 15.9 |
| Hunger | 57.9 | 15.9 | 60.1 | 19.6 | 59.0 | 18.3 | 61.8 | 18.2 |
| Much | 61.1 | 15.8 | 62.0 | 19.6 | 63.0 | 16.0 | 65.6 | 15.8 |
| Satisfaction | 35.9 | 12.0 | 36.1 | 15.7 | 34.8 | 17.2 | 31.6 | 16.0 |
| **After Lunch** | | | | | | | | |
| Fullness | 71.3 | 12.7 | 68.6 | 14.3 | 71.5 | 13.5 | 73.8 | 14.0 |
| Hunger | 19.8 | 13.1 | 19.9 | 12.7 | 21.8 | 14.2 | 19.3 | 11.7 |
| Much | 27.9 | 13.9 | 28.3 | 16.1 | 28.1 | 18.5 | 24.3 | 16.2 |
| Satisfaction | 74.2 | 12.4 | 71.3 | 14.3 | 71.3 | 14.0 | 74.8 | 15.2 |
| **Before Dinner** | | | | | | | | |
| Fullness | 32.3 | 11.1 | 30.7 | 13.5 | 30.6 | 14.9 | 28.5 | 14.3 |
| Hunger | 61.5 | 13.2 | 62.1 | 16.7 | 59.9 | 16.8 | 62.8 | 18.6 |
| Much | 66.1 | 14.1 | 66.4 | 15.7 | 64.4 | 16.2 | 68.8 | 15.7 |
| Satisfaction | 33.6 | 11.8 | 33.1 | 12.1 | 33.5 | 14.4 | 29.9 | 15.3 |
| **After Dinner** | | | | | | | | |
| Fullness | 78.5 | 17.0 | 76.6 | 14.4 | 76.8 | 13.2 | 78.4 | 15.2 |
| Hunger | 13.1 | 9.1 | 17.2\* | 11.1 | 17.3 | 13.6 | 16.0 | 9.3 |
| Much | 19.8 | 11.3 | 22.1 | 12.8 | 20.3 | 13.1 | 19.2 | 11.4 |
| Satisfaction | 79.2 | 16.8 | 78.2 | 14.1 | 77.5 | 15.7 | 79.7 | 12.7 |

1 Two-way repeated-measures ANOVA (blocked by participant) and least significant difference test. Mean value is significantly different from before intervention within a particular intervention phase; \* p < 0.05. SD: standard deviation

**SUPPLEMENTAL TABLE 5**

Appetite rating (full, hungry, much [how much can you eat], satisfied ratings using an 100 mm anchored visual analogue scale) changes 30 mins before and 30 mins after breakfast, lunch and dinner during the placebo and prebiotic intervention phases in the low dietary fibre group1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Placebo (n = 14)** | | | | **Prebiotic (n = 14)** | | | |
|  | **Before intervention** | | **After intervention** | | **Before intervention** | | **After intervention** | |
|  | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Before Breakfast** |  |  |  |  |  |  |  |  |
| Fullness | 32.1 | 13.0 | 34.1 | 13.2 | 35.5 | 19.6 | 33.9 | 13.9 |
| Hunger | 56.0 | 15.5 | 54.1 | 15.9 | 47.2 | 19.0 | 46.5 | 18.6 |
| Much | 59.9 | 16.9 | 56.6 | 14.6 | 51.8 | 17.9 | 54.4 | 14.5 |
| Satisfaction | 32.2 | 11.8 | 33.4 | 11.6 | 39.6 | 18.5 | 36.3 | 16.2 |
| **After Breakfast** |  |  |  |  |  |  |  |  |
| Fullness | 70.5 | 15.2 | 72.8 | 17.0 | 69.4 | 18.2 | 65.4 | 24.5 |
| Hunger | 21.5 | 13.9 | 23.2 | 14.5 | 25.2 | 21.1 | 24.8 | 14.2 |
| Much | 29.8 | 18.9 | 30.3 | 18.7 | 27.0 | 20.0 | 29.7 | 18.4 |
| Satisfaction | 71.1 | 14.9 | 72.1 | 17.6 | 71.4 | 18.2 | 67.2 | 23.4 |
| **Before Lunch** |  |  |  |  |  |  |  |  |
| Fullness | 38.5 | 10.6 | 36.1 | 19.6 | 32.2 | 15.8 | 35.4 | 18.8 |
| Hunger | 50.5 | 17.0 | 53.6 | 23.3 | 58.0 | 19.7 | 57.3 | 17.6 |
| Much | 54.6 | 16.6 | 54.4 | 22.7 | 61.4 | 16.3 | 62.2 | 14.5 |
| Satisfaction | 42.8 | 10.3 | 38.4 | 18.3 | 32.6 | 16.5 | 35.6 | 17.5 |
| **After Lunch** |  |  |  |  |  |  |  |  |
| Fullness | 71.0 | 13.2 | 75.5 | 15.3 | 73.3 | 17.1 | 73.8 | 15.4 |
| Hunger | 21.1 | 16.1 | 18.1 | 11.3 | 20.4 | 17.4 | 18.9 | 13.6 |
| Much | 25.1 | 15.6 | 22.1 | 14.3 | 25.2 | 22.1 | 23.2 | 19.6 |
| Satisfaction | 74.1 | 13.0 | 75.1 | 15.5 | 74.2 | 15.8 | 75.0 | 16.3 |
| **Before Dinner** |  |  |  |  |  |  |  |  |
| Fullness | 32.3 | 11.5 | 34.6 | 15.5 | 33.0 | 17.1 | 30.1 | 17.5 |
| Hunger | 62.1 | 14.6 | 59.3 | 20.4 | 57.0 | 19.2 | 61.7 | 20.5 |
| Much | 62.3 | 15.6 | 60.7 | 17.8 | 62.1 | 17.1 | 63.9 | 19.3 |
| Satisfaction | 35.0 | 13.4 | 36.0 | 13.9 | 33.4 | 15.3 | 30.9 | 18.1 |
| **After Dinner** |  |  |  |  |  |  |  |  |
| Fullness | 82.2 | 19.1 | 80.5 | 18.6 | 83.2 | 10.2 | 78.8 | 20.0 |
| Hunger | 13.7 | 10.8 | 14.5 | 10.4 | 13.1 | 11.0 | 16.2 | 12.2 |
| Much | 18.0 | 13.9 | 17.2 | 13.9 | 15.4 | 10.3 | 17.2 | 13.7 |
| Satisfaction | 80.3 | 20.2 | 80.3 | 19.5 | 83.4 | 10.0 | 79.8 | 17.0 |

1 Two-way repeated-measures ANOVA (blocked by participant) and least significant difference test. Mean values were not significantly different (p > 0.05) from each other. SD: standard deviation

**SUPPLEMENTAL TABLE 6**

Appetite rating (full, hungry, much [how much can you eat], satisfied ratings using an 100 mm anchored visual analogue scale) changes 30 mins before and 30 mins after breakfast, lunch and dinner during the placebo and prebiotic intervention phases in the high dietary fibre group1

1 Two-way repeated-measures ANOVA (blocked by participant) and least significant difference test. Mean values are significantly different from before intervention within a particular intervention phase; \* p < 0.05, \*\* p < 0.01. SD: standard deviation

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Placebo (n = 19)** | | | | **Prebiotic (n = 20)** | | | |
|  | **Before intervention** | | **After intervention** | | **Before intervention** | | **After intervention** | |
|  | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Before Breakfast** |  |  |  |  |  |  |  |  |
| Fullness | 31.4 | 15.1 | 29.0 | 14.7 | 27.7 | 17.1 | 29.1 | 19.6 |
| Hunger | 49.3 | 18.4 | 51.6 | 23.1 | 57.5 | 19.9 | 52.8 | 24.5 |
| Much | 58.7 | 16.5 | 61.2 | 19.9 | 62.7 | 19.5 | 59.1 | 20.7 |
| Satisfaction | 36.0 | 12.5 | 35.3 | 16.8 | 35.1 | 17.8 | 34.8 | 21.0 |
| **After Breakfast** |  |  |  |  |  |  |  |  |
| Fullness | 70.9 | 11.4 | 71.1 | 15.4 | 67.5 | 12.0 | 74.4 | 13.7 |
| Hunger | 20.7 | 13.7 | 17.0 | 11.7 | 21.9 | 10.3 | 17.0 | 13.6 |
| Much | 30.6 | 12.0 | 25.9 | 13.4 | 29.4 | 13.7 | 25.0 | 12.4 |
| Satisfaction | 73.6 | 10.9 | 75.8 | 13.6 | 69.5 | 13.4 | 74.1 | 12.8 |
| **Before Lunch** |  |  |  |  |  |  |  |  |
| Fullness | 28.6 | 13.6 | 30.4 | 13.7 | 29.2 | 13.5 | 26.4 | 12.8 |
| Hunger | 63.1 | 13.2 | 64.7 | 15.2 | 59.7 | 17.8 | 64.9 | 18.4 |
| Much | 65.7 | 13.9 | 68.5 | 15.3 | 64.2 | 16.0 | 67.9 | 16.6 |
| Satisfaction | 31.1 | 10.9 | 33.8 | 13.9 | 36.3 | 17.9 | 28.8\* | 14.7 |
| **After Lunch** |  |  |  |  |  |  |  |  |
| Fullness | 71.5 | 12.7 | 64.3\*\* | 11.4 | 70.4 | 10.6 | 73.9\*\* | 13.4 |
| Hunger | 18.9 | 11.0 | 20.5 | 13.8 | 22.8 | 11.9 | 19.6 | 10.6 |
| Much | 29.9 | 12.7 | 32.0 | 16.2 | 30.1 | 15.7 | 25.1 | 13.8 |
| Satisfaction | 74.2 | 12.2 | 69.0\* | 13.1 | 69.3 | 12.5 | 74.7\* | 14.8 |
| **Before Dinner** |  |  |  |  |  |  |  |  |
| Fullness | 32.3 | 11.2 | 28.1 | 11.4 | 28.9 | 13.3 | 27.5 | 12.0 |
| Hunger | 61.1 | 12.5 | 63.4 | 13.6 | 62.0 | 15.0 | 63.6 | 17.6 |
| Much | 68.8 | 12.6 | 70.6 | 12.8 | 66.0 | 15.8 | 72.2 | 12.0 |
| Satisfaction | 32.6 | 10.8 | 30.9 | 10.4 | 33.6 | 14.2 | 29.2 | 13.5 |
| **After Dinner** |  |  |  |  |  |  |  |  |
| Fullness | 75.9 | 15.2 | 74.5 | 10.0 | 72.4 | 13.5 | 78.2 | 11.4 |
| Hunger | 12.4 | 7.9 | 19.2\*\* | 11.5 | 20.3 | 14.8 | 15.8\*\* | 7.1 |
| Much | 21.0 | 9.1 | 25.5 | 10.9 | 23.7 | 14.0 | 20.6 | 9.5 |
| Satisfaction | 78.4 | 14.3 | 76.6 | 8.7 | 73.3 | 17.8 | 79.6 | 9.1 |

**SUPPLEMENTAL TABLE 7**

Short-chain fatty acid concentration and bacterial taxa changes during the placebo and prebiotic intervention phases in the low dietary fibre group1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Low dietary fibre** | | | | | | | |
|  | **Placebo (n = 14)** | | | | **Prebiotic (n = 14)** | | | |
|  | **Before intervention** | | **After intervention** | | **Before intervention** | | **After intervention** | |
|  | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Short-chain fatty acids (µmol/g)** | | | | | | | | |
| Acetate | 31.46 | 18.07 | 33.64 | 17.90 | 28.97 | 18.23 | 34.26 | 22.33 |
| Butyrate | 10.34 | 7.16 | 9.38 | 5.42 | 7.77 | 5.10 | 8.27 | 5.28 |
| Propionate | 10.02 | 5.76 | 12.62 | 8.30 | 9.99 | 6.31 | 10.88 | 7.08 |
| Sum of short-chain fatty acids | 55.73 | 28.84 | 61.43 | 32.34 | 51.02 | 29.00 | 57.59 | 33.95 |
| **Phylum (% relative abundance)** | | | | | | | | |
| Actinobacteria | 12.81 | 6.11 | 13.16 | 7.99 | 13.98 | 9.42 | 23.17\*\* | 9.59 |
| Bacteroidetes | 13.07 | 8.06 | 12.84 | 5.33 | 11.31 | 8.94 | 9.56 | 5.43 |
| Firmicutes | 72.30 | 7.36 | 71.59 | 9.73 | 72.82 | 8.79 | 65.96 | 9.74 |
| Proteobacteria | 0.62 | 0.53 | 0.78 | 0.85 | 0.65 | 0.93 | 0.30^ | 0.36 |
| Verrucomicrobia | 0.41 | 0.69 | 0.68 | 1.18 | 0.33 | 0.58 | 0.20 | 0.46 |
| **Genus (% relative abundance)** | | | | | | | | |
| *Bifidobacterium* | 8.40 | 5.53 | 8.62 | 6.83 | 9.81 | 7.78 | 18.01\*\* | 7.85 |
| *Collinsella* | 3.51 | 2.64 | 3.30 | 3.13 | 2.95 | 3.09 | 3.94 | 3.22 |
| *Bacteroides* | 7.98 | 3.82 | 7.63 | 4.38 | 6.77 | 5.01 | 5.73 | 3.91 |
| *Prevotella* | 3.08 | 5.50 | 2.39 | 3.62 | 2.94 | 4.89 | 2.48 | 3.62 |
| *Lactobacillus* | 0.56 | 1.38 | 1.02 | 2.98 | 0.59 | 1.29 | 2.97 | 5.64 |
| *Lachnospiraceae,* other, unknown genus | 2.50 | 1.31 | 2.41 | 1.58 | 2.38 | 1.46 | 1.84 | 0.64 |
| *Lachnospiraceae,* unknown genus | 12.37 | 7.68 | 12.28 | 5.14 | 11.85 | 7.20 | 13.24 | 7.36 |
| *Blautia* | 11.72 | 7.02 | 9.25 | 4.33 | 10.42 | 5.57 | 8.10 | 4.08 |
| *Coprococcus* | 3.43 | 1.82 | 3.31 | 1.88 | 3.83 | 2.13 | 3.07 | 1.87 |
| *Dorea* | 1.93 | 1.01 | 1.60 | 0.85 | 2.01 | 1.22 | 1.19 | 0.54 |
| *Ruminococcus (Lachnospiraceae*) | 1.91 | 2.09 | 1.94 | 1.74 | 2.55 | 1.99 | 1.24^ | 1.31 |
| *Ruminococcaceae,* unknown genus | 15.63 | 5.19 | 15.78 | 4.38 | 15.95 | 5.08 | 13.10^ | 4.84 |
| *Faecalibacterium* | 0.42 | 0.39 | 0.51 | 0.34 | 0.39 | 0.29 | 0.45 | 0.33 |
| *Oscillospira* | 1.10 | 0.62 | 1.25 | 0.84 | 1.21 | 0.65 | 0.91^ | 0.47 |
| *Ruminococcus (Ruminococcaceae)* | 5.35 | 3.28 | 5.67 | 4.39 | 5.80 | 4.26 | 5.04 | 4.01 |
| *Dialister* | 0.86 | 1.36 | 0.97 | 1.71 | 1.00 | 1.65 | 1.09 | 2.13 |

1 Two-way repeated-measures ANOVA (blocked by participant) and least significant difference test. Mean values are significantly different from those of the placebo intervention and prebiotic before intervention; \*p < 0.05, \*\*p < 0.01, ^trend towards significance (p < 0.1). SD: standard deviation

**SUPPLEMENTAL TABLE 8**

Short-chain fatty acid concentration and bacterial taxa changes during the placebo and prebiotic intervention phases in the high dietary fibre group1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **High dietary fibre** | | | | | | | |
|  | **Placebo (n = 19)** | | | | **Prebiotic (n = 20)** | | | |
|  | **Before intervention** | | **After intervention** | | **Before intervention** | | **After intervention** | |
|  | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Short-chain fatty acids (µmol/g)** | | | | | | | | |
| Acetate | 32.02 | 18.08 | 33.92 | 20.21 | 33.32 | 19.74 | 43.17 | 19.69 |
| Butyrate | 9.32 | 5.39 | 9.49 | 5.92 | 9.08 | 5.80 | 11.48 | 5.60 |
| Propionate | 10.14 | 6.64 | 10.90 | 7.52 | 10.05 | 8.90 | 12.69 | 7.83 |
| Sum of short-chain fatty acids | 55.37 | 29.37 | 58.05 | 33.05 | 56.57 | 33.12 | 71.06 | 31.05 |
| **Phylum (% relative abundance)** | | | | | | | | |
| Actinobacteria | 9.45 | 6.45 | 9.13 | 6.32 | 8.87 | 5.97 | 17.70\*\* | 10.23 |
| Bacteroidetes | 15.20 | 14.53 | 13.27 | 10.23 | 16.82 | 11.44 | 14.50 | 9.48 |
| Firmicutes | 73.34 | 13.71 | 75.52 | 11.85 | 72.12 | 12.15 | 65.54\* | 12.09 |
| Proteobacteria | 0.30 | 0.21 | 0.32 | 0.22 | 0.47 | 0.47 | 0.41 | 0.45 |
| Verrucomicrobia | 0.27 | 0.66 | 0.16 | 0.41 | 0.26 | 0.33 | 0.15 | 0.21 |
| **Genus (% relative abundance)** | | | | | | | | |
| *Bifidobacterium* | 5.20 | 4.65 | 4.94 | 4.65 | 4.51 | 4.10 | 13.02\*\* | 8.58 |
| *Collinsella* | 3.25 | 2.50 | 3.05 | 2.62 | 3.15 | 2.69 | 3.72 | 2.53 |
| *Bacteroides* | 5.38 | 3.49 | 5.58 | 4.16 | 6.81 | 3.66 | 5.96 | 3.10 |
| *Prevotella* | 7.05 | 15.29 | 4.60 | 7.20 | 6.79 | 11.03 | 6.51 | 9.73 |
| *Lactobacillus* | 0.01 | 0.01 | 0.02 | 0.04 | 0.03 | 0.06 | 0.07 | 0.24 |
| *Lachnospiraceae,* other, unknown genus | 1.75 | 0.82 | 1.54 | 0.78 | 1.50 | 0.78 | 1.35 | 0.54 |
| *Lachnospiraceae,* unknown genus | 13.94 | 3.99 | 14.27 | 5.94 | 13.04 | 5.58 | 15.80 | 5.39 |
| *Blautia* | 10.09 | 4.82 | 9.59 | 4.61 | 9.53 | 4.36 | 7.36 | 3.82 |
| *Coprococcus* | 4.08 | 1.84 | 4.79 | 2.26 | 4.97 | 2.74 | 3.88\* | 1.42 |
| *Dorea* | 1.44 | 0.69 | 1.62 | 0.89 | 1.57 | 0.71 | 1.20\* | 0.75 |
| *Ruminococcus (Lachnospiraceae*) | 1.80 | 1.31 | 1.95 | 1.61 | 1.81 | 1.20 | 1.10\* | 0.83 |
| *Ruminococcaceae,* unknown genus | 16.84 | 4.60 | 17.65 | 4.15 | 14.74 | 3.12 | 15.49 | 3.31 |
| *Faecalibacterium* | 0.50 | 0.27 | 0.56 | 0.28 | 0.42 | 0.18 | 0.72\* | 0.28 |
| *Oscillospira* | 1.10 | 0.72 | 0.99 | 0.59 | 1.00 | 0.42 | 0.70 | 0.45 |
| *Ruminococcus (Ruminococcaceae)* | 5.78 | 4.11 | 5.41 | 3.80 | 5.27 | 3.47 | 3.94 | 2.77 |
| *Dialister* | 0.70 | 1.00 | 1.03\* | 1.48 | 1.12 | 1.81 | 0.84 | 1.14 |

1 Two-way repeated-measures ANOVA (blocked by participant) and least significant difference test. Mean values are significantly different from those of the placebo intervention and prebiotic before intervention or in the case of *Dialister* significantly different from those of the prebiotic intervention and placebo before intervention; \*p < 0.05, \*\*p < 0.01. SD: standard deviation