Eight weeks of a novel prebiotic fiber supplement favorably alters human gut microbiota

Dr. Dan Gubler and Dr. Benjamin Bikman

Unicity International, Orem UT 84057, USA

Introduction

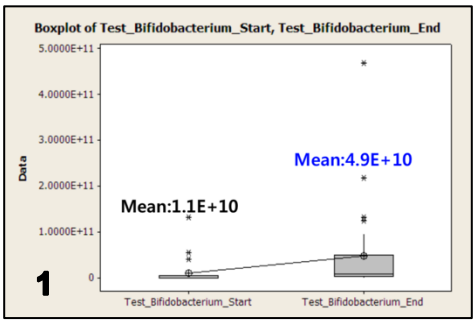
One of the most common conclusions across all published research in the realm of nutrition and health is that dietary fiber improves health. Dietary fiber has many benefits, including changes in blood lipids, glucose control, and body weight. However, the most exciting development is the recent focus on changes in intestinal bacteria. Bacteria prevalent in the gut, referred to as the gut microbiome, are known to alter human health in myriad ways, including immune and metabolic systems. To exploit the potential benefits of gut bacteria, supplements focus on either directly providing bacteria orally (i.e., "probiotics") or providing fiber as fuel for beneficial bacteria (i.e., "prebiotic"). The purpose of this study was to determine the degree to which a relatively short-term exposure to a novel prebiotic fiber supplement favorably alters gut bacteria population.

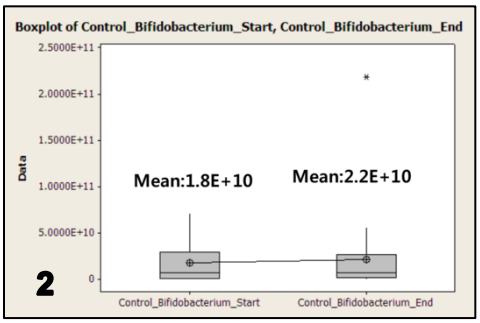
Methods

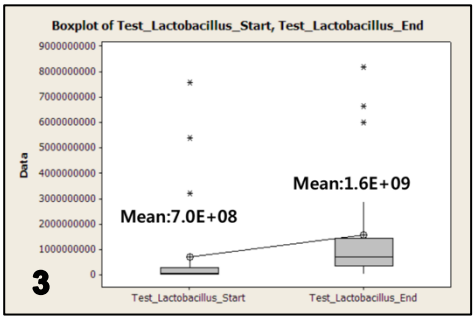
60 adults were evenly divided into two groups, one which received daily prebiotic fiber and the other placebo. The study measured fecal bacteria populations at baseline and at the conclusion of the study eight weeks later. Bacteria populations were quantified via RT-qPCR (Korea Research and Institute of Biomedical Science). Specific bacteria explored were *bifidobacteria* and *lactobaccilus*, which are both considered beneficial to metabolic health, and *clostridium*, which, in contrast, is considered harmful.

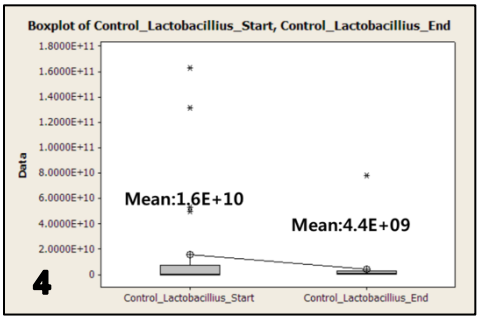
Results

Despite the relatively short term of this intervention, we observed a robust increase (~4.5-fold; p=0.03) increase in *Bifidobacterium* in the group receiving daily prebiotic fiber, with no difference in the placebo group (Figures 1 and 2). *Lactobaccilus* tended to increase in the prebiotic group and decrease in the placebo group (Figures 3 and 4). Lastly, *clostridium*, a pathogenic bacterium, was unchanged in both groups, with a trend towards increasing in the placebo group (not shown).









Conclusions

One of the most significant advances in our understanding of human health is the relevance of bacteria naturally found within the gut. Despite much remaining unknown, the sum of evidence suggests that *Bifidobacterium* and *Lactobaccilus* improve human health. The general increase in these two bacteria, particularly *Bifidobacterium*, in the intestines of people taking a prebiotic fiber supplement for 8 weeks indicates a favorable shift. Moreover, the lack of increase *clostridium* rise suggests this shift was exclusive to bacteria considered beneficial. In conclusion, eight weeks of a daily prebiotic fiber improves the population of beneficial gut bacteria in humans.