

Bacteria May Help Obesity, But There's a Catch

By Chris Kilham, Published September 11, 2013

The average human body holds many more times as many bacteria as the number of bodily cells. So it's no exaggeration to say that bacteria play a key role in our health. The greatest quantity of these bacteria reside in the digestive system, and are known as gut flora. The type of flora we carry determines a lot about how well our immune systems function, how we detoxify harmful compounds from the body, and how we digest our food and eliminate waste.

Now research from the Washington University School of Medicine in St. Louis confirms previous studies showing that bacteria in the gut known as Bacteroides also influence weight control and may help to control obesity. In the study, fecal bacteria from lean mice were implanted into the intestines of their obese identical twins, resulting in weight loss. The Bacteroides microbes helped to reduce body fat, prevent weight gain, and also prevented insulin resistance, a key factor in Type 2 diabetes. In the same study, lean mice given bacteria from obese mice gained weight. The findings were published in the Journal of Science.

There is, however, a catch. **The bacterial treatment had lasting effects only if the mice given the bacterial implants also were put on a healthy diet high in fiber***. This confirms numerous studies showing that the food we eat has a direct relationship to the types of bacteria produced in the human digestive system. The composition of bacteria in lean animals and humans is composed of a higher concentration of certain Bacteroides microbes.

This study advances work previously published in the International Journal of Obesity in 2009, showing that the flora in the intestines of obese adolescents changed in composition, favoring a higher level of bacteroides bacteria, as a result of a change to a healthier diet. Another study published in 2012 showed that implanting Bacteroides uniformis bacteria into obese mice resulted in weight loss and improved blood sugar control.

We have known for decades that bacteria in the gut influences digestion and elimination. Advances in this area have led to the development of many "probiotic" foods that improve overall gastrointestinal health. This has resulted in a global market for probiotic foods exceeding \$10 billion annually. Perhaps the most publicized is the Activia brand of yogurt marketed by the Danone group, which contain Bifidobacterium lactis. Ads for the product promise improved intestinal regularity after just a few weeks of regular consumption. Danone has been sued for making exaggerated health claims, but the products remain highly popular. Danone continues to defend its science.

As a result of the several studies that point to weight improvement in animals and humans due to the presence of Bacteroides bacteria, we can anticipate the development of new, novel probiotic foods, beverages and supplements to aid obesity. **But the important factor remains diet. Implanting Bacteroides into the guts of the obese may initiate weight reduction and better blood sugar control, but the effects will not last without dietary modification.** (*emphasis added*)

Many studies of gut bacteria show that eating a diet rich in fiber, fruits and vegetables, leads to natural production of Bacteroides bacteria. These bacteria in turn gobble calories and help to maintain a slim body composition. As the science on gut flora advances, we will unquestionably see products rich in Bacteroides to aid the obese. These products can help to kick-start a new metabolic trend in the body, initiating weight reduction and improved blood sugar regulation. But if we are going to see any significant trend toward lasting reduction of weight among those who are overweight, changing dietary habits will remain paramount for success. Some things never change.

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