

The Bacteria Babies Need

By Kristin Lawless

Ms. Lawless writes frequently about food and health.

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We may be missing the key to one of the biggest boons to public health since the introduction of iodine into the food supply in 1924.

Scientists at the University of California, Davis, have found that a strain of bacteria called *B. infantis* that is thought to have been the dominant bacterium in the infant gut for all of human history is disappearing from the Western world. According to their research, this was probably caused by the rise in cesarean births, the overuse of antibiotics and the use of infant formula in place of breast milk.

Indeed, nine out of 10 American babies don't harbor this bacterium in their gut, while researchers suspect that the majority of infants in less industrialized countries do.

Bruce German, a professor of food science and technology and one of the U.C. Davis researchers, says, "The central benefits of having a microbiota dominated by *B. infantis* is that it crowds all the other guys out" — especially pathogenic bacteria, which can cause both acute illnesses and chronic inflammation that leads to disease.

Studies suggest that by the time babies without *B. infantis* are children, they are more likely to have allergies and Type 1 diabetes and more likely to be overweight. This change to the infant gut may be at the root of the rising prevalence of diseases and ailments, from allergies to certain cancers.

Dr. German and his colleagues learned about the missing bacterium by studying breast milk. They found that the milk contains an abundance of oligosaccharides, carbohydrates that babies are incapable of digesting. Why would they be there if babies can't digest them?

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They realized that these carbohydrates weren't feeding the baby — they were feeding *B. infantis*.

What can new mothers do to ensure that their babies have this beneficial bacterium? At the moment, nothing.

If you live in the industrialized world, you probably can't pass *B. infantis* on to your baby. Not even if you give birth vaginally, breast-feed exclusively and eat well.

B. infantis is not the only endangered bacterium in the West, and babies aren't the only ones affected. By studying mice, researchers at Stanford have found that a lack of dietary fiber — which is missing from most processed foods — results in the loss of important bacterial strains.

Once these strains are gone, the only way to get them back will be to deliberately reintroduce them.

In a study funded by a company that plans to do just that, Dr. German and colleagues fed *B. infantis* to breast-fed babies. They found that it took over the entire lower intestine, crowding out pathogenic bacteria.

Although it's too early to know if these babies will turn out to be healthier than their peers, the hope is that the presence of *B. infantis* for the first year or two of life will help prevent colic, allergies, asthma, obesity, diabetes, heart disease and cancers later in life.

Dr. German envisions a future when it will be common for us to add the bacterium to some of our foods, much as we did with iodine.

But just inoculating babies with *B. infantis* won't be enough. We should also give their mothers the opportunity to breast-feed.

The bacterium can't survive without the carbohydrates it depends on. While companies are trying to figure out how to add oligosaccharides into infant formula, it will be very difficult to replicate the complexity and concentration of the carbohydrates that are naturally present in breast milk.

While the decision to breast-feed is often framed as a personal choice, most women have no choice. Only 15 percent of workers and 4 percent of the lowest-paid workers in the United States have access to paid family leave, which means they often can't afford to stay home with a newborn.

Many other nations — like Austria, Bulgaria, the Czech Republic, Hungary, Japan, Latvia, Lithuania, Norway and Slovakia — manage to provide working parents with more than a year's worth of paid family leave.

We should do the same. It's not just about better personal health, but about better public health, which has been in decline in this country for decades.

We'd also be wise to heed these findings on the microbiota as a harbinger of what's to come. The promotion of infant formula in place of breast milk, and our reliance on processed foods into adulthood, have had some unforeseen and frightening repercussions for our health. The industrialization of our food supply is changing us from the inside out.

Kristin Lawless is the author of “Formerly Known as Food: How the Industrial Food System Is Changing Our Minds, Bodies, and Culture.”

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