

Life would go on if all bacteria disappeared, but it wouldn't be pleasant

21 HOURS AGO • BY RACHEL FELTMAN THE WASHINGTON POST

Microbes: They're everywhere, including inside our bodies. But are they really necessary? Not to life, scientists argue in a new paper — but certainly to life as we know it.

For starters, microbiologists Jack Gilbert and Josh Neufeld had to put aside the internal cell structures that were probably once bacteria. Obviously without mitochondria (the "powerhouse" of the cell) we'd all be dead pretty much instantly.

But if you got rid of, say, gut bacteria — the microbes that live inside the human digestive system and help keep everything moving — the consequences aren't necessarily dire. Living in a bacteria-free bubble is unnecessary and probably very unpleasant, the scientists argue in PLOS (Public Library of Science), but not inherently deadly.

"If someone were to wave an antimicrobial wand and eliminate all bacterial and archaeal life on the planet, what would happen?" Gilbert and Neufeld write. "The usual rhetoric is that life as we know it would end, human societies would collapse, and eukaryotic life would cease to exist. Is all of this true?"

Not exactly, but it wouldn't exactly be a walk in the park.

Humans would carry on as usual, digesting their food and getting sick with viruses, for about a week before we noticed anything was even wrong. But animals that rely on bacteria to digest their food — cows, for example — would start dying off.

After about a year, all photosynthesis would likely cease. Bacteria are vital in keeping nitrogen cycling through the ecosystem, and nitrogen is vital to plant growth. Meanwhile, without bacteria around to break down biological waste, it would build up. And dead organisms wouldn't return their nutrients back to the system. It's likely, the authors write, that most species would experience a massive drop in population, or even go extinct.