

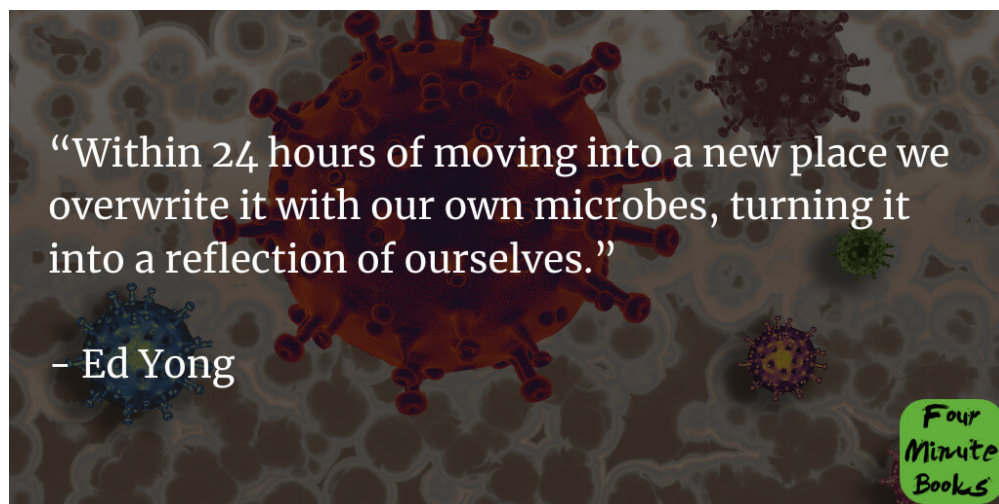
# I Contain Multitudes Summary

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**1-Sentence-Summary:** *I Contain Multitudes will make you smarter and healthier by teaching you about the tiny ecosystems of microbes that live inside your body and on everything you see and by showing you how they affect your life and how to utilize them to improve your well-being.*

**Read in:** 4 minutes

**Favorite quote from the author:**



When I say the word “microbes” what comes to mind? Maybe you think of icky bacteria that gives you food poisoning, or maybe the infamous COVID-19 pandemic. I became acquainted with these tiny creatures in my University Microbiology lab.

It was fascinating, but also a tiny bit unsettling, to see that one quick swab of my phone could make a diverse colony when left to grow in a petri dish. I tried my best not to think too much about these creepy crawling bug-like creatures all over myself and my stuff.

But as I came to learn, they are everywhere. And you can rest at ease far more of them are benign than harmful. In fact, many of them have a symbiotic relationship with us and are essential to our life. All that said, washing your hands and sanitizing your phone is still advised of course.

In *I Contain Multitudes: The Microbes Within Us and a Grander View of Life*, Ed Yong dives deep into the riveting microscopic world all around us. You will gain a greater appreciation for everything microbes do for you and learn how they make human life possible.

These are just 3 of the many fascinating lessons I’ve learned from this book:

1. Microbes cover everything around and inside of you, helping you and our entire planet function properly.
2. If you want to be healthy and have a strong immune system, you need to take care of your microbiome.
3. We could see some dramatic healthcare advancements if we look for ways to engineer microbe systems to our advantage.

Grab the keys to the Magic School Bus and let's go on a journey of microscopic proportions to learn more about this fascinating world!

## **Lesson 1: Neither our planet nor your body could function properly if it weren't for the nearly infinite microbes that cover everything.**

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Did you know that if the earth's 4.5 billion years of existence were a calendar year, humans would show up for the last 30 minutes of December 31st? Microbes, on the other hand, would have been around since March. Microbes have been around for a very long time. And though we don't realize it, they shaped the world as we know it today.

They may be tiny, but they play a vital role in breaking down molecules all around us.

**Microbes break down our soil and enrich it, allowing both carbon and nitrogen to complete their environmental cycles.**

They also played an important role in the sky, too. Microbes were actually the first to use photosynthesis or using sunlight for energy. When they ate the sugar created by photosynthesis, they released oxygen, which helped create our atmosphere. This process also paved the way for the carbon cycle.

You can find microbes just about anywhere on earth, from a 400-degree volcano to under the ice of Antarctica. This is thanks to their ability to evolve rapidly. Because they are single-celled, they actually have the ability to transfer pieces of DNA to each other and add them to their genome.

## **Lesson 2: Take care of your microbiome if you want to be healthy.**

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You probably know someone who is really grossed out when it comes to germs and goes to extremes to keep things clean. But if you really want to stay healthy, there are some things you need to learn about microbes and your immune system.

Your immune system can be compared to a thermostat that needs to stay at an ideal setting. If your "immunostat" is set too low, you will only react to bigger things and ignore smaller bugs. This way, you run the risk of getting an infection if it lets something by that isn't so docile.

On the other hand, if it's set too high, you may begin to react to everything that comes your way. Your immune system will react to something harmful like pollen or even attack its own cells. This will cause allergies or autoimmune disorders.

**The right amount of exposure to microbes will help you calibrate your immune system to the best setting.** Unfortunately, the way we live now has started to minimize that natural exposure of the past, which is why we see things like allergies on the rise.

This exposure is most important in early childhood, where in the past kids were exposed to dirt and dust. Now we live in cities with sanitized water, away from domesticated animals, and focus a lot on cleanliness. Sure, be clean, but know it's okay to let kids play outside in the dirt once in a while. Other ways we can cultivate a healthy gut are by eating diverse foods that will appeal to different gut microbes.

### **Lesson 3: Engineering microbe systems has a lot of potential to improve our healthcare.**

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You may have taken probiotics in the past and been a bit disappointed at the lack of results. The problem with probiotics, including yogurt, is that it is harder to make a lasting impact because the bacteria they contain is foreign to the gut. Adding just a few of these won't change much.

But there is another way to introduce a whole new microbiome, and it could even save lives. The author talks about RePOOPulate, a project to help people overcome the deadly *Clostridium difficile*, a disease that causes severe diarrhea, fever, and nausea. It's very contagious and often recurring. But when a relative donates a healthy fecal sample, they can use it to transplant it into the patient and it has great results.

Another way we can use microbes to our advantage in medicine is by manipulating them for specific purposes. Harvard scientists found a way to equip an *E. coli* bacteria with a genetic switch that would turn blue when it came into contact with an antibiotic. This could show doctors if patients had been taking their medication.

Researchers are now trying to find other ways to use these genetic switches in microbes. **The hope is they could use these genetic switches as early warnings for diseases before symptoms even appear.**

### **I Contain Multitudes Review**

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Whoooooah this is all so cool! *I Contain Multitudes* is an amazing book that I think anyone who has a body will find super interesting! If you're the kind of person that loves science or thinks that germs and microbes are gross, you've got to read this book.

### **Who would I recommend the I Contain Multitudes summary to?**

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The 32-year-old new mom who can't handle letting their kids touch anything that might get them sick, the 59-year-old that loves reading about the science of the body, and anyone that wants to learn about a highly misunderstood aspect of their health.