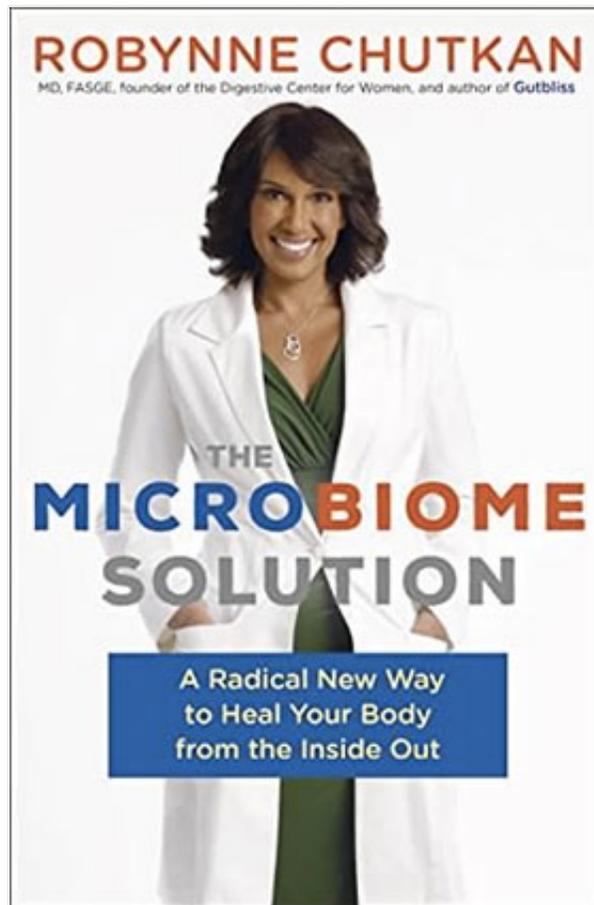


Interview with Dr. Robynne Chutkan, Author of The Microbiome Solution



Dr L: Let's start with a definition – what exactly is the microbiome?

Dr Chutkan: The microbiome refers to all the bacteria, viruses, and fungi that live in or on your body – over 100 trillion microbes, plus their genes. More than 1 billion bacteria in just one drop of fluid in your colon alone. Your unique microbial footprint develops over your lifetime, and it reflects everything about you: your parents' health, how and where you were born, what you've eaten (including whether your first sips were breast milk or formula), where you've lived, your occupation, personal hygiene, past infections, exposure to chemicals and toxins, medications, hormone levels. The end result is a mix so distinctive that your microbiome is a more accurate identifier of you than your own DNA.

Dr L: It seems like every week there's a new article on the microbiome – why is it so important to our health?

Dr Chutkan: Microbes are the worker bees that perform most of the important functions in your body. They help to digest your food, train your immune system to distinguish between friend & foe, turn your genes on and off, synthesize important vitamins that your body can't make on its own, aid in detoxification, neutralize cancer-causing compounds, and a host of other things. So your overall health is closely tied to the health of your microbes.

Dr L: What are some of the diseases that result from an altered microbiome?

Dr Chutkan: Damage to the microbiome, what we call *dysbiosis*, is the root cause of a broad range of diseases. Not just gastrointestinal disorders like Crohn's, ulcerative colitis, and irritable bowel syndrome (IBS), but autoimmune diseases like thyroid disorders, multiple sclerosis (MS), and type-1 diabetes. Studies have demonstrated an altered microbiome in children with autism, in certain types of cancer, obesity, and even heart disease. Research presented at the American Heart Association meeting in 2012 described administration of a *Lactobacillus* strain that resulted in a reduction of blood levels of LDL or "bad" cholesterol. Anxiety and obesity can both be induced in germ-free mice by transferring microbes from anxious or obese mice, and novel treatments for depression that utilize various strains of bacteria, which can impact levels of the feel-good hormone, serotonin, are underway.

Dr L: What do you see as the biggest threat to our microbiome?

Dr Chutkan: The overuse of antibiotics, 80% of which are used in the production of animals, and our over-processed, nutrient-poor diet. We're killing off our microbes with unnecessary antibiotics, and then starving the ones that remain by not feeding them the right stuff.

Dr L: From a microbial point of view, what should we be eating to maximize growth of

our good bacteria?

Dr Chutkan: The most important ingredient for growing a good gut garden is indigestible plant fiber. It's the preferred food of the healthy bacteria living in our gut. We should be eating foods that are high in inulin (a form of soluble dietary fiber), like leeks, garlic, onion, artichokes, asparagus, lentils, and oats. Fermented foods are also great because they act as a prebiotic, meaning they provide food for our gut bacteria, and the fermentation process also produces additional live bacteria. Foods like sauerkraut, kimchi and pickles contain live bacteria from the fermentation process and also lots of fiber.

Dr L: What about lifestyle choices – how do they impact our microbiome?

Dr Chutkan: Microbial disruptors are everywhere: in the food we eat, the water we drink, the products we use on our bodies and in our homes, the medications we take. Even our thoughts can be a threat – stress wreaks havoc on the microbiome. We spend a lot of time scrubbing away healthy microbes on our skin with too much bathing and anti-bacterial products, and using hand sanitizers that contain the microbial disruptor triclosan. Franken foods full of chemicals and artificial sweeteners that are harmful to gut bacteria can also have a big impact on the health of our microbes.

Dr L: Antibiotics are one of the most frequently prescribed class of drugs, and it can be confusing trying to figure out when they're truly necessary versus when we can skip them and still be OK. What are some questions we should be asking our health care providers when we've been prescribed an antibiotic?

Dr Chutkan:

- Is the antibiotic prescribed for me absolutely necessary?
- Is it being used to treat an actual infection, or to prevent one?
- What would be the natural course of my illness if I didn't take an antibiotic?
- Is there a narrow-spectrum antibiotic such as penicillin I can take instead of the

more powerful broad-spectrum antibiotic I've been prescribed?

Dr L: These days it seems everyone is taking a probiotic, but do they really work, and if so, should we all be taking one?

Dr Chutkan: The right probiotic may offer real promise for people with a damaged microbiome, but not all probiotics are created equal. It's important to take the correct strains of bacteria for the condition you're trying to treat, and to make sure that they're present in adequate amounts. My book, *The Microbiome Solution*, has an entire chapter devoted to picking the right probiotic, as well as a detailed list of which conditions are most likely to be helped by taking one.

Dr L: What about stool transplants – are they going to become mainstream therapy in the near future?

Dr Chutkan: Absolutely! Once you get over the yuck factor it's clear that when it comes to gut bacteria, going straight to the source makes perfect sense. Fecal microbiome transplant, or FMT, has already proven to be the most effective therapy for certain types of intestinal infections, like *Clostridium difficile* colitis, and there's growing evidence that it's a useful treatment for autoimmune disorders like Crohn's and ulcerative colitis. FMT isn't without risk though, including spreading infection and transferring disease-causing genes, so it's important to weigh the risks and benefits before deciding this therapy is right for you. Everything you need to know about FMT, including testing of the donor stool and a step-by-step guide to administering the transplant are outlined in *The Microbiome Solution*.

Dr L: Give us your top 5 tips for creating a healthy microbiome.

Dr Chutkan:

- Avoid antibiotics unless absolutely necessary
- Eat lots of fibrous plants
- Skip the hand sanitizer

- Get a pet – (we just got a puppy named Hugo and he’s helping to rewild the whole family with lots of dirt and licks!)
- Plant a garden – get your hands dirty *and* eat the veggies you grow!