

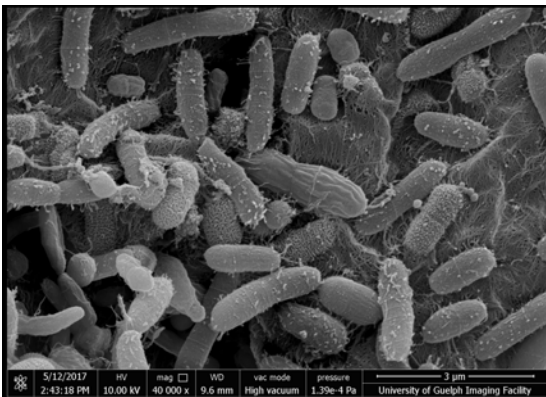
GUTZ: the Inside Story

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Your bowel is home to an entire megacity of microbes! Termed the 'gut microbiota', these include viruses, bacteria, archaea (ancient, bacteria-like organisms), yeasts and other interesting critters.

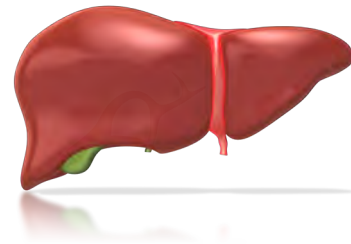
Bacteria are by far the most prevalent form of cellular life in your gut. There are so many that they outnumber your own body's cells by a factor of 1:1.3! When you have a bowel movement, you flush away an astonishing 10 trillion bacterial cells! But don't worry, they grow back very quickly!



What do these microbes look like?

Here is a scanning electron micrograph of

poop bacteria digesting a kernel of corn, magnified 40,000x. Note that a few microbes have protrusions on their surfaces that help them to stick to, and digest, corn particles.



Like a liver, your gut microbes carry out a lot of metabolic work for you. In fact, we like to think of them collectively as a 'virtual organ'. You could never live without your liver, and similarly you should consider your gut microbes as a **vital organ**.

Have you damaged your gut microbes?

We now know that many lifestyle choices and medical practices have the potential to cause damage to our virtual 'gut microbiota' organ. Like clear-cutting a forest, antibiotics have a very significant effect on the microbes of the gut, and sometimes the resulting changes may be life-long. Diet, too, plays an enormous role in shaping your gut microbial kingdom. Sometimes, we need antibiotics to stay healthy, so we cannot necessarily avoid causing suffering for our microbial friends (and you should always take and finish an antibiotic course if prescribed by your doctor). However, we can help our microbiota to recover by eating a balanced, nutritious diet, rich in fibers.

GUTZ: the inside story, continued



How's your diet? If you regularly consume foods and beverages that contain artificial additives such as flavours, preservatives and colours, switching to more natural foods could be a boon for your gut bugs. We don't yet understand all of the damaging effects of food additives on the gut microbiota, but there is plenty of emerging evidence that artificial sweeteners and emulsifiers, for example, cause detrimental changes to the balance of your microbial friends in your gut. My advice – prepare your food from scratch using simple ingredients that you can pronounce easily!

Help! I have gut dysbiosis! What can I do about it?

Gut dysbiosis is a term that we don't yet know how to define. We know it means an imbalance in the microbiota – but what does that entail? Everyone has a different group of microbes in their gut, so it is not very easy to figure out what is wrong when there is imbalance, and there are no definitive diagnostic tests for gut dysbiosis yet. Probiotics may be of benefit in some cases, but many probiotics have dubious health claims associated with them. Probiotics with proven benefits can be found in this on-line guide, which I highly recommend: <http://www.probioticchart.ca/>.

Unlike probiotics, **prebiotics** are foods that are not digested by your body but can be used by your existing gut bugs for food. They have the potential to help your own beneficial microbes to increase in numbers, hopefully providing more benefits. But remember that since you have a unique microbiota, your prebiotic needs may also be unique. My advice: eat a broad range of fibrous foods to support the broadest possible group of gut microbial species. Diversity is everything!



Suggested reading



There's some great new books on the microbiome now out. All of them contain some great information and are fascinating to read. Here are a few of my suggested favourites – enjoy!

I contain Multitudes by Ed Yong

Let them Eat Dirt by Marie-Claire Arietta and Brett Finlay

Follow your Gut: the enormous impact of tiny microbes by Robin Knight

Dirt is Good by Jack Gilbert and Robin Knight

Missing Microbes by Martin Blaser