

You are not alone. I am not talking about your connections with your family and community or alien attacks. I am talking about in your own body. Within our own flesh we have a community of interdependent organisms that are working in concert to help maintain our health and functioning. The name given to this community is the **microbiome** (*micro* - small, *biome* - community of organisms) and it is increasingly becoming a source of interest in the scientific and popular media. This week I would like to talk about the microbiome. There is a lot of speculation about the potential importance of the microbiome in affecting everything from allergies and eczema to arthritis and weight loss. While these concepts are only beginning to be understood, it is clear that the microbiome and caring for it does have important implications for our health. Read on to find out what you can do to keep the community

inside

of you functioning its best.

So what is the microbiome? (Do you mean I have bugs inside of me?)

Do you know anyone who has ever gotten bitten (accidentally I hope) by a person or perhaps an animal? You may have heard people say, humans or cats have 'dirty mouths' -- assuming they were not referring to their language, they were referring to the idea that our mouths are full of bacteria. These bites are usually treated with antibiotics to prevent infection. In addition to our mouths, we know that our intestines are also home to billions of bacteria and some fungal species. There are also many bacteria that live on our skin. You may have heard of MRSA, a type of bacteria that can be found on skin and that can potentially cause serious skin and other infections. So, yes we do have bacteria in many areas of our body. However, bacteria are not necessarily a bad thing. We are increasingly learning that there can be many potentially good aspects of certain bacteria. They can help us digest certain food components that we might not otherwise be able to digest. Some bacteria may help regulate our hormones and may influence our metabolism (the process of turning food into energy).

Why should I care about the microbiome? Scientists are only beginning to understand the importance of the microbiome. They are doing this through a variety of experiments and observations in both animals and humans. Some of these interesting observations have included finding that gut bacteria can manufacture and secrete chemicals that can affect our appetite and digestion. It has been observed that mice who are completely lacking in gut bacteria will tend to gain more weight. Babies who are breast fed versus formula fed tend to have a different mix of gut bacteria. Some of these differences in gut bacteria continue even after infants are weaned and may play a role in the increased rates of allergy and asthma seen in formula-fed infants. Different people in different parts of the world tend to have very different types of bacteria in their gut. In general, western people tend to have a less diverse mix of bacteria. It is thought that this may be due to higher levels of exposures to antibiotics.

Having a healthy gut bacterial community can be an important part of increasing our resistance to certain infections. Antibiotics are essential in some instances to treat infections. However, they do not discriminate between 'good' and 'bad' bacteria and as a side effect of treatment they can cause a significant decrease in the number of 'healthy' gut bacteria. When our gut is populated with healthy bacteria it may be more difficult for bad infections to take hold. One infection that is sometimes seen after receiving antibiotics is called *Clostridium Difficile* (C. Diff for short). Individuals who get C. Diff can have diarrhea (sometimes bloody), abdominal pain

and fevers. This used to be an infection that was mostly seen in sick hospitalized patients. Now we are seeing it more and more in the community. These C. Diff infections are also becoming more difficult to treat, often requiring repeated courses of antibiotics. Which in turn can lead to more destruction of healthy gut bacteria and make individuals more likely to contract future infections. You may have heard in the news about fecal (stool) transplants. While this may seem surprising (and kind of gross), these transplants are being used in some places to treat these C. Diff infections. These fecal transplants work by providing the sick person with a dose of healthy gut bacteria. They are showing promise as a potential cure for treatment resistant C. Diff infections.

How can having healthy gut affect my health?

Our gut is important. If it is not in good shape we do not feel good. Our gut health is impacted by the food we eat (or do not eat), by the medications we take, by the way we spend our time and by the thoughts that occupy our mind. Digestive issues are increasingly plaguing people. Everyday in my office I see people (often young) with gut concerns - reflux, gastritis, bloating, constipation, abdominal pain. We have medications to treat reflux, to treat constipation etc. But, these just address the symptoms. They do not get at the root cause. The root cause often has many factors and the bacteria we are keeping in our gut may have an important role to play.

How can I protect and strengthen my microbiome? So, while our understanding of the microbiome is limited, there are some things you can do to support a strong and healthy gut community:

- 1. Avoid unnecessary antibiotics** - Antibiotics are powerful medicines and have an important role to play in treating bacterial infections. However, they can do damage if they are prescribed unnecessarily. For instance, antibiotics are not effective against viruses like the common cold and older children do not necessarily need antibiotics for most ear infections (which are often caused by cold viruses and not bacteria). Antibiotics can damage our healthy gut bacteria. Discuss with your healthcare provider the necessity of antibiotic treatment when it is recommended. Consider taking a probiotic supplement as soon as antibiotics are prescribed. (Probiotics are tablets or powders that contain doses of healthy gut bacteria. There is good evidence that these decrease the likelihood of getting a C. Diff infection).
- 2. Breastfeed your infant if you can (every bit helps)** - There are a lot of benefits to breastfeeding. Breast milk helps to establish a healthy mix of gut bacteria that may 'set your child up for life' and decrease the likelihood of developing childhood allergies and asthma and may make them less likely to be overweight or obese in later life. Maximum health benefits of breastfeeding have been seen with breastfeeding at least 6 months, but every bit that you can do is a potential benefit. If health or other issues prevent you from breastfeeding, you can still support the health of your children by making sure that they have a healthy and varied diet when they start solid food.
- 3. Wash your hands (but take it easy with the antibacterial soap).** Antibacterial soaps and hand sanitizers have not been shown to be any more effective than washing your hands well with regular soap and water. In addition, while the evidence is not consistent, some previous studies have shown that widespread use of antibacterial soaps may increase the potential for antibiotic resistance.
- 4. MOST IMPORTANT - eat a diet rich in whole foods.** Yes, you knew it would have to be here somewhere. The best way to support our gut and the microbes is to feed them what they

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need. Whole, unprocessed foods, lots and lots of fresh vegetables, some fruits and natural grains (i.e. brown rice, barley, quinoa etc.) are essential. We have all heard that we need fiber. It is not just because it keeps you regular, it is also because the fiber supplies some very important nutrients to our gut bacteria that feed on the fibrous materials in these whole foods. These bacteria then benefit us by maintaining our gut health and making us more capable of defending ourselves against disease.

So remember: We are never alone! We are part of a community inside and out. Let's continue working to maintain and increase the health and function of our communities.

Dr. Winbush is a family physician practicing at NorthPoint Health and Wellness Center. She has a strong interest in wellness and patient education to help individuals feel empowered to optimize their health and functioning. She wants to hear from you! To respond to this article, request topics for future articles and for additional resources email functionwellmedicine@gmail.com, visit Function Well Medicine on Facebook or tweet @DrNicoleWinbush.

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