

# NIH News in Health

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## Keeping Your Gut in Check

### Healthy Options to Stay on Tract

Your digestive system is busy. When you eat something, your food takes a twisty trip that starts with being chewed up and ends with you going to the bathroom. A lot happens in between. The health of your gut plays a key role in your overall health and well-being. You can make choices to help your body stay on tract.

Your digestive, or gastrointestinal (GI), tract is a long, muscular tube that runs from your mouth to your anus. It's about 30 feet long and works with other parts of your digestive system to break food and drink down into smaller molecules of nutrients. The blood absorbs these and carries them throughout the body for cells to use for energy, growth, and repair.

With such a long GI highway, it's common to run into bumps in the road. About 60 to 70 million Americans are affected by digestive diseases, like gastroesophageal reflux disease (GERD) or irritable bowel syndrome (IBS). GERD happens when your stomach acid and/or contents come back up into your esophagus (swallowing tube) or throat. This causes uncomfortable symptoms like heartburn and indigestion. IBS is a group of symptoms that includes pain in the abdomen and changes in bowel habits. People with IBS may have constipation, diarrhea, or both. Many more people have other digestive problems, like bloating and stomach pain.

"There are many factors that can impact gut health," says Dr. Lin



Chang, a GI expert at the University of California, Los Angeles. How your body's built, your family and genetic history, how you manage stress, and what you eat can all affect your gut.

"I see a lot of lifestyle-related GI issues, and there are often no quick fixes for that," she says. "In general, people do well when they create a more routine schedule, eat a healthy diet and smaller more frequent meals, add in some exercise, and get a good amount of sleep."

Chang studies the connection between stress and IBS. Her research group has found that people who have early life stress are more likely to develop IBS. "However, this increased risk for IBS went down when people confided in someone they trust about the stress they experienced," she explains. "Finding healthy ways to manage stress is important for GI health, and your health overall."

What you eat can help or hurt your digestive system, and influence how you feel. "Increasing fiber is really important for constipation," says Chang. "Most Americans do not eat a lot of fiber so you have to gradually increase the fiber in your diet. Otherwise you might get gas and more bloating, and won't stick with [the changes]."

Chang says you should eat at least 20–30 grams of fiber a day for constipation. You can spread out your fiber in small amounts throughout the day. Start with small servings and gradually increase them to avoid gas, bloating, and discomfort.

Try to eat fruits and vegetables at every meal. A variety of fruits, vegetables, whole grains, and nuts can provide a healthy mix of different fibers and nutrients to your diet. An added benefit is that the more fiber and whole foods you eat, the less room you'll have for less healthy options.

But some fiber-rich foods, called high FODMAP foods, can be hard to digest. Examples include certain fruits and vegetables, dairy products, and wheat and rye products. If you have IBS, your doctor may recommend a diet low in FODMAPS.

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Researchers are coming to understand the complex community of bacteria and other microbes that live in the human GI tract. Called gut flora or microbiota, these microbes help with our digestion. But evidence has been growing that gut microbes



### Wise Choices For Better Gut Health

- **Eat slower.** Chew your food well before swallowing. It may help you swallow less air and better sense when you're full.
- **Enjoy smaller meals.** Eat in moderation to avoid overfilling your stomach and encourage digestion. A packed stomach may also cause reflux, or your food to come back up.
- **Set a bedtime for your gut.** Try to limit how much you eat after dark. Your GI tract is most active in the morning and daytime.
- **Manage stress.** Learn healthy ways to reduce stress like relaxation breathing, mindfulness, and exercise. Stress makes it harder to digest your food well.
- **Create a routine.** Try to eat around the same times each day. Your GI system may do best on a schedule.
- **Consider probiotics.** Talk with your doctor about taking probiotics (supplemental healthful bacteria). They may ease constipation and IBS symptoms.

may influence our health in other ways too. Studies suggest that they may play roles in obesity, type 2 diabetes, IBS, and colon cancer. They might also affect how the **immune system** functions. This can affect how your body fights illness and disease. Recent studies have found that microbes' effects on the immune system may impact the development of conditions such as allergy, asthma, and **rheumatoid arthritis**.

You might have heard that probiotics—live microbes that are similar to those found in the human gut—can improve your gut health. These are also called “friendly bacteria” or “good bacteria.” Probiotics are available in dietary supplements and in certain foods, such as yogurt.

There is some evidence that probiotics may be helpful in preventing diarrhea associated with antibiotics and improving symptoms



### Definitions

#### Immune System

The body's defense against germs and foreign substances.

#### Rheumatoid Arthritis

A disease in which your immune system starts attacking your joint tissues.

#### Inflammatory Diseases

Diseases that cause too much inflammation—a swelling and irritation that normally protects your body from infection and disease.



### Web Links

For more about gut health, click the “Links” tab at: [newsinhealth.nih.gov/issue/May2017/Feature1](http://newsinhealth.nih.gov/issue/May2017/Feature1)

of IBS, but more needs to be learned. Researchers still don't know which probiotics are helpful and which aren't. They also don't know how much of the probiotics people would have to take or who would most likely benefit from them.

Certain food additives called emulsifiers are something else that may affect your gut health. Emulsifiers are added to many processed foods to improve texture and extend shelf life. But studies show they can affect our gut flora.

“Our work and other research indicate that emulsifiers and other food additives can negatively impact the microbiota and promote **inflammatory diseases**,” says Georgia State University's Dr. Andrew Gewirtz. His group has been studying the relationships between food additives, gut bacteria, and disease in mice. The team also plans to examine how different food additives may affect people.

Based on what his team and others have found, Gewirtz advises, “The take home message: Eat a balanced diet and less processed foods.”

“The GI system is complicated and such an important part of our health,” Chang says. “It takes a real partnership between patient and doctor to get to the root of issues. Everyone has to find a healthy routine that works for them.”

She encourages you to take an active role in finding a doctor who makes you feel comfortable. The right doctor will listen carefully to your health history and symptoms. You can help keep your gut in check by talking with your doctor and—**together**—making the right choices for you. ■

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# Cough Culprits

## What's the Difference Between Bronchitis and Pneumonia?

Coughs help your body clear your airways of irritants and prevent infection. But a deep cough from your chest may signal bronchitis or pneumonia. Although they may have different underlying causes, their symptoms can be similar—and both can be serious enough to send you to the doctor.

Bronchitis and pneumonia both involve **inflammation** in the chest. Both can cause coughs that bring up a slimy substance called phlegm to help clear out germs and pus. And both can cause shortness of breath and wheezing.

Bronchitis is a condition in which the bronchial tubes that lead to the lungs become inflamed. Viruses, bacteria, and even toxins like tobacco smoke can inflame the bronchial tubes. Most of the time, though, bronchitis is caused by an infection with one of several types of viruses. If you develop bronchitis during flu season, a likely culprit may be the flu virus. Cold viruses are also common causes at this and other times of year.

Pneumonia is caused by an infection of the lungs. "About 1/3

of cases are caused by viruses, but most of them are bacterial related," says Dr. Kenneth Olivier, a lung infection expert at NIH. "They're from bacteria that are quite common, like *Streptococcus pneumoniae*, which is the leading cause of bacterial pneumonias in all ages in the U.S."

If you get a fever with bronchitis, it is usually mild (below 101 degrees Fahrenheit). In more serious cases, you may have chest pain, feel short of breath, or wheeze when you breathe in.

"Pneumonia, on the other hand, typically is associated with fever, sometimes very high, spiking fever," Olivier says. Breathing problems, chest pain, and other symptoms also tend to be more severe with pneumonia.

If you have a fever and chills, trouble breathing, or a cough that is bringing up thick phlegm—especially if it's yellow or green—go see your doctor.

Your doctor can listen to your lungs by placing a stethoscope on your chest. "Frequently, the physician can hear areas where the breath sounds are altered," Olivier says. If you have pneumonia, your doctor may hear bubbling, crackling, or rumbling sounds from the lungs.

You may be sent for a chest X-ray, which can show whether the lungs contain fluid or pus from an infection. An X-ray is the best way to diagnose pneumonia and rule out bronchitis.

Whichever illness you have, resting and drinking plenty of fluids are important ways to care for yourself.



If you're diagnosed with bronchitis, your doctor probably won't give you antibiotics. Because viruses are the usual cause of bronchitis, antibiotics are seldom helpful. If you're wheezing, however, you may be given medicine to open your airways. Your cough may last 10 to 20 days.

Because bacteria are often the cause of pneumonia, your doctor may prescribe antibiotics. It can take 1 to 4 weeks to recover from pneumonia. Some people require treatment in the hospital.

Germs that cause colds, the flu, and lower airway infections are contagious. The best way to prevent getting bronchitis or pneumonia is to avoid getting these infections. And when you're sick, take care not to spread your germs to others (see "Wise Choices" box for tips). ■



### Wise Choices Guard Against Airway Infections

- Wash your hands often with soap and water.
- Use alcohol-based hand gel if you're unable to wash them.
- Cough into a tissue, your elbow, or your sleeve.
- Ask your doctor about vaccines for you and your children. Certain vaccines can prevent airway infections caused by harmful viruses and bacteria.
- Avoid people who are coughing or showing signs of infection.
- Avoid tobacco smoke.



### Definitions

#### Inflammation

Swelling and irritation caused by the body's protective response to injury.



### Web Links

For more about bronchitis or pneumonia, click the "Links" tab at: [newsinhealth.nih.gov/issue/May2017/Feature2](http://newsinhealth.nih.gov/issue/May2017/Feature2)



# Health Capsules

For links to more information, see these stories online:  
[newsinhealth.nih.gov/issue/May2017/Capsule1](http://newsinhealth.nih.gov/issue/May2017/Capsule1)

## How Your Eating Habits Affect Your Health

A new study shows how the things you eat can influence your risk of dying from heart disease, stroke, or type 2 diabetes. The findings suggest ways to change your eating habits to improve your health.

Experts already know that a healthy eating plan includes vegetables, fruits, whole grains, and fat-free or low-fat dairy products. A healthy diet also includes lean meats, poultry, fish, beans, eggs, and nuts. It limits saturated and trans fats, sodium, and added sugars.

NIH-funded scientists analyzed how these 10 dietary factors affect your risk of death from heart disease, stroke, and type 2 diabetes. These are known as cardiometabolic diseases.

The team relied on data from the CDC's National Health and Nutrition Examination Survey (NHANES) and national mortality data.

The scientists found that risk of death from the 3 diseases was higher for those who consumed too much sodium, processed meat, sugar-sweetened beverages, and unprocessed red meat. Risk of death was also higher among those who didn't eat enough nuts and seeds, seafood omega-3 fats, vegetables, fruits, whole grains, or polyunsaturated fats. According to the analysis, nearly half (45%) of deaths in 2012 from the 3 diseases was associated with too much or too little of these 10 dietary factors.

"This study establishes the number of cardiometabolic deaths that can be linked to Americans' eating habits, and the number is large," explains Dr. David Goff, a heart disease and public health expert at NIH. "Second, it shows how recent reductions in those deaths relate to improvements in diet, and this relationship is strong. There is much work to be done in preventing heart disease, but we also know that better dietary habits can improve our health quickly, and we can act on that knowledge by making and building on small changes that add up over time." ■

## Spanish-Language Health Materials

For people looking for reliable health material in Spanish, the amount of information on the web can be overwhelming. NIH prides itself on providing evidence-based health information to the public, and seeks to empower everyone with knowledge about their health. This is particularly important in Spanish-speaking communities that are disproportionately affected by certain illnesses and diseases.

The NIH Spanish Health Information Portal offers a wealth of free, science-based health information in Spanish, from across NIH in one place. The mobile-friendly site includes translations of many health

articles from *NIH News in Health* and clinical trials information from the Clinical Research Trials and You website. It also features a monthly column called Ask Carla (Pregunta a Carla), designed for readers to ask their own questions about NIH's Spanish-language resources.

The Spanish portal now offers a free monthly e-newsletter featuring NIH health information in Spanish on topics from allergies to Zika. Each month, the e-newsletter highlights new resources for the Spanish-speaking public and their friends and family members.

You can visit the portal and sign up for the newsletter at [salud.nih.gov](http://salud.nih.gov)! ■



### Featured Website Understanding the Human Genome Project

<https://www.genome.gov/25019879/online-education-kit-understanding-the-human-genome-project>

Get ready to discover the science and history behind the Human Genome Project. Watch videos about DNA and how genomes are sequenced. Cruise along a timeline of genetic milestones from the 1800s through the Human Genome Project's completion in 2003.



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