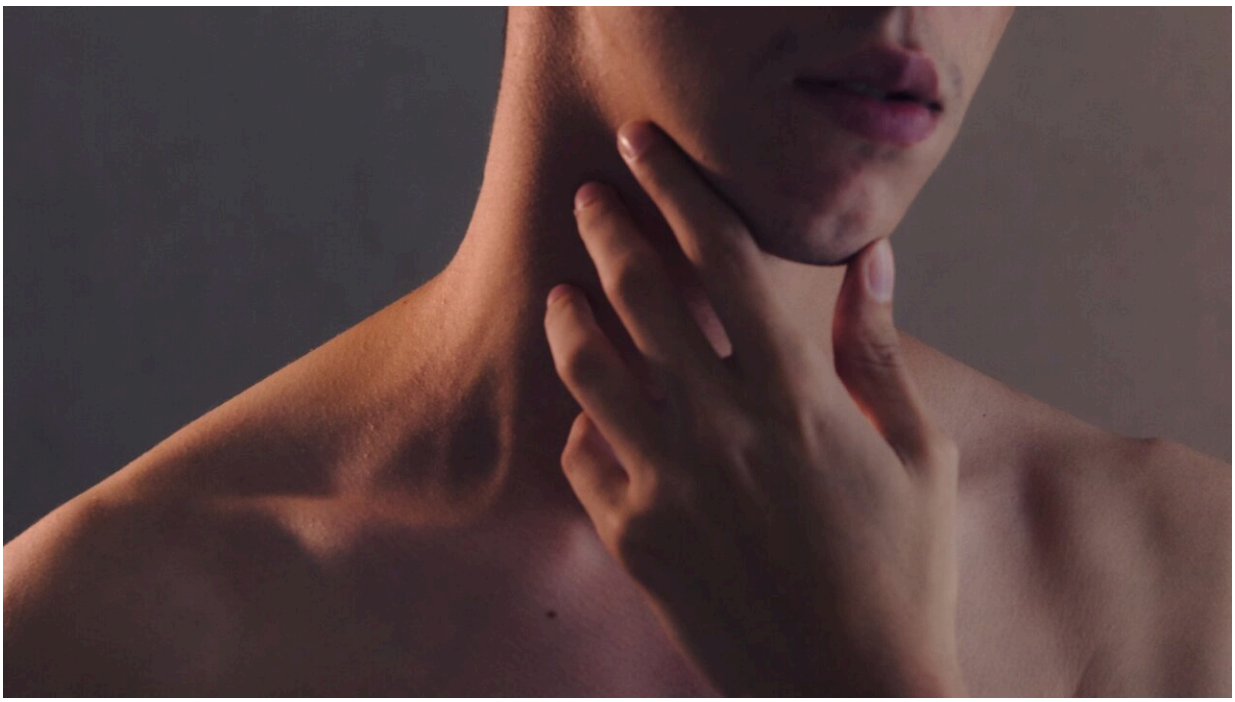
# Strep throat can easily be confused with throat infections caused by viruses—here are a few ways to know the difference

July 14 2023, by Allen Shaughnessy



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"My sore throats, you know, are always worse than anybody's."

So declares Mary to Anne in "Persuasion," Jane Austen's 1817 book. Most of us can relate to this feeling. There is no such thing as "just a

sore throat." The pain, headache, fever and aches associated with a sore throat can make you feel terrible.

While sore throats can occur at any time of year, strep throat is more common in the fall, winter and early spring.

I am a professor of family medicine, a pharmacist and an expert on evidence-based medicine. My work involves the evaluation of research performed by others, and I have been following and analyzing research findings on strep for the past 30 years.

Many people incorrectly assume that all sore throats are due to strep throat, a bacterial infection of the pharynx, the middle throat area behind the nose and mouth, and patients often come to our family medicine office wanting to be checked and treated for strep with antibiotics.

However, neither testing nor treatment is always needed for a sore throat. Regardless of the cause, rest and pain relievers form the cornerstone of sore throat treatment.

Here's some guidance on whether and when testing is necessary.

## Bacterial versus viral sore throats

Most sudden-onset sore throats are caused by viruses—the same ones that cause the common cold, the seasonal flu and COVID-19. There are more than 200 viruses that can cause sore throat and other symptoms related to the common cold.

But bacteria can also be the culprits behind a sore throat. One of the most common examples is strep throat, or group A pharyngitis.

Strep is caused by certain strains of Streptococcus pyogenes bacteria.

There are many species of strep; other common forms of strep that cause different infections in humans include "group B strep" and "group D strep." Group A strep usually lives peacefully among the many other types of bacteria growing on our skin and doesn't cause any problems, until we get a break in the skin such as a cut or a scrape. This allows it to overwhelm the immune system's ability to keep it in check.

Group A strep can also live in the back of the throat—up to 30% of people without any evidence of a sore throat will have this strain in their throat. Up to 3 in 10 children and 1 in 10 adults feeling sick with a sore throat due to a virus or other cause will test positive for group A strep. That means that people with a sore throat caused by a virus could also be positive for strep, even if it's not causing the symptoms.

Not all group A strep bacteria are the same, though. Some varieties are better at evading the immune system than others and can grow quickly. Others produce byproducts that can cause a sore throat and sometimes lead to tonsillitis, an infection of the tonsils, or cause ear or sinus infections.

Still other strep strains produce a toxin that can cause a characteristic skin rash or lead to effects on the heart, kidneys or even the brain.

Rarer still, group A strep can enter the bloodstream and cause toxic shock syndrome, a life-threatening, overwhelming infection. These latter conditions are examples of invasive strep, meaning that the infection is in parts of the body typically free from germs; they seem to be on the rise after a marked reduction in their occurrence during the COVID-19 pandemic.

**To test or not to test**

Doctors or other clinicians can easily test for strep by using a swab to

collect a bit of the fluid from the back of the throat. This sample can identify group A strep in about a minute.

While researchers have been studying group A strep for over 75 years and there are thousands of research papers focused on infections caused by strep, there is still controversy over whether it needs to be tested for and treated.

To decide whether to test for group A strep, clinicians use a set of criteria based on five questions that can help determine whether strep testing is needed. These are:

- How old is the patient? Strep throat is most common in children between ages 5 and 15 and least common in adults over age 45.
- Are the tonsils swollen or do they have a white or yellow coating? Both conditions often accompany strep. However, this question alone isn't definitive, since viruses can also affect the tonsils.
- Are the cervical lymph nodes swollen or tender? Normally these bumps, which are in the front of the neck along the sides of the windpipe, cannot be seen or felt, but are often palpable when strep is present.
- Does the person have a fever? Lack of a fever makes strep less likely.
- Does the person have a cough? A cough is indicative of a viral cause and makes strep the less likely cause of the sore throat.

While none of these questions alone can provide a clear answer, taken together they can tell your clinician whether strep is more or less likely.

Using this scoring tool, an adult with a sore throat but without changes to the tonsils or lymph nodes, without a fever and with a cough has only a 1 in 40 chance, or 2.5%, of having strep throat. For such patients, a strep test is not necessary.

On the other hand, when a first grader meets all five of these criteria, there is a 50% chance that strep is causing his or her sore throat. Based on recent research I have reviewed, by using these questions adults can determine when strep is the likely cause of a sore throat.

In the United Kingdom and other European countries, doctors do not routinely test for strep. Antibiotic treatment can at times cause allergic reactions, rash, diarrhea, stomach upset, yeast infections and other side effects. Authorities in these countries feel any benefit of testing and treatment does not outweigh these risks.

## Treatments for strep

Once group A strep is confirmed, doctors may prescribe an antibiotic treatment.

Penicillin or amoxicillin are the most commonly prescribed antibiotics for strep. These medicines will not reduce pain or tiredness but may help symptoms resolve earlier, typically by about a day. Doctors may also suggest use of a pain reliever such as acetaminophen or ibuprofen to help relieve symptoms.

Antibiotic treatment does not seem to lower the likelihood of spread of the infection between children—which is common in schools and dormitories—or adults.

Health care practitioners recommend staying home until fever has subsided. They also recommend taking the full course of antibiotics, even if the symptoms have abated.

With sore throats causes by viruses—against which antibiotics are ineffective—few treatments exist aside from using pain relievers to help soothe immediate symptoms. For this reason and because antibiotic

overuse is a major problem in the U.S., it is best not to assume that your sore throat is caused by strep and to treat it accordingly.



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