CONDITION

# Histoplasmosis

Histoplasmosis is a fungal infection usually acquired by breathing in spores from contaminated soil.

**WHAT IT IS**
Fungal infection usually affecting the lungs

**BODY SYSTEM**
Lungs; sometimes nervous, digestive, and other body systems

**MAIN SYMPTOMS**
Fever, cough, tiredness, chest pain

**WHAT CAUSES IT**
Infection from inhaling Histoplasma fungal spores

**HOW IT IS DIAGNOSED**
Antigen tests, fungal culture, microscopy, or tissue biopsy

**MAIN TREATMENT**
Antifungal medicines; observation for some mild infections

**CAN IT BE CURED?**
Yes - most infections clear, though relapse can occur

**IS IT AN EMERGENCY?**
Sometimes - severe breathing trouble or confusion

**LONG-TERM OUTLOOK**
Most recover; widespread infection can be life-threatening

## Overview

Histoplasmosis is an infection caused by the fungus Histoplasma . The fungus lives in soil, especially soil enriched with bird or bat droppings. Infection happens when fungal spores become airborne and are breathed into the lungs.

Many people have no symptoms or only a mild illness. When symptoms occur, histoplasmosis often resembles flu or pneumonia. It may cause fever, cough, tiredness, and chest discomfort.

The infection sometimes spreads from the lungs through the bloodstream. This is called disseminated histoplasmosis. "Disseminated" means widespread. It can affect organs such as the liver, spleen, bone marrow, adrenal glands, digestive tract, or brain. This form is more likely in people with weakened immune systems and can be serious.

Histoplasmosis occurs in many parts of the world. In the United States, it is especially associated with the Ohio and Mississippi River valleys, but exposure can occur outside these areas. Travel and past residence matter because symptoms or complications may appear after the original exposure.

## Symptoms

Most people who breathe in Histoplasma spores do not become noticeably unwell. If symptoms develop, they commonly begin several days to a few weeks after exposure.

Symptoms of acute pulmonary histoplasmosis, which is a recent lung infection, may include:

Some people develop joint pain or tender red bumps on the lower legs. These symptoms are caused by the immune system's response to the infection rather than fungus growing in the skin or joints.

A heavy exposure can cause more severe lung inflammation. This may happen after disturbing heavily contaminated material in caves, chicken coops, old buildings, or construction sites.

Chronic pulmonary histoplasmosis is a longer-lasting form that mainly affects people with existing lung damage, particularly emphysema. Symptoms may develop over months and include ongoing cough, weight loss, fever, night sweats, shortness of breath, or coughing up blood. It can create hollow spaces, called cavities, in the lungs.

Disseminated histoplasmosis can cause persistent fever, marked tiredness, weight loss, swollen liver or spleen, mouth sores, abdominal symptoms, or changes in blood cell counts. Symptoms involving the brain or its lining may include headache, confusion, neck stiffness, balance problems, or seizures.

These symptoms have many possible causes. Having them does not mean you have histoplasmosis.

- Fever or chills
- Dry cough
- Tiredness
- Headache or muscle aches
- Chest pain or discomfort
- Shortness of breath

## Causes and risk factors

Histoplasmosis is caused by breathing in microscopic spores from Histoplasma . The fungus grows in the environment rather than inside birds or bats, but their droppings can enrich soil and support fungal growth.

Activities that disturb contaminated soil or debris can release spores. Examples include exploring caves, cleaning bird or bat roosts, demolishing old buildings, landscaping, excavation, and cleaning chicken coops.

Histoplasmosis does not usually spread between people through coughing, touching, or everyday contact. You also do not catch it directly from a bird or bat.

Anyone exposed to enough spores can become infected. The chance of severe or widespread infection is higher in:

Medicines linked to increased risk include some treatments for cancer, autoimmune conditions, and prevention of transplant rejection. Do not stop an immune-suppressing medicine on your own. The risks of changing treatment must be considered carefully.

- People with HIV, especially when immune function is very low
- Organ or stem-cell transplant recipients
- People taking medicines that suppress the immune system
- Infants and older adults
- People exposed to a large amount of contaminated material
- People with emphysema or other structural lung damage

## Diagnosis

Histoplasmosis can be difficult to recognize because its symptoms and chest imaging can look like bacterial pneumonia, tuberculosis, lung cancer, or other fungal infections. Your medical history may provide important clues, including travel, previous places of residence, cave visits, demolition work, or contact with bird or bat roosts.

A urine or blood antigen test looks for pieces of the fungus. Antigen testing is especially useful when infection is severe or widespread. It may be less sensitive in mild lung infection.

Blood antibody tests look for the immune system's response to Histoplasma . Antibodies can take several weeks to appear, so an early negative result may not rule out infection. The response may also be weaker in someone whose immune system is suppressed.

The fungus may be identified by growing it in a laboratory culture or by examining sputum,

body fluids, bone marrow, or tissue under a microscope. Culture can provide strong evidence of infection but may take several weeks.

A biopsy removes a small tissue sample for examination. It may be needed when imaging shows a lung nodule, enlarged lymph nodes, or another abnormal area. Chest X-rays and CT scans can show inflammation, enlarged lymph nodes, cavities, or old calcified spots, but imaging alone cannot confirm active histoplasmosis.

## Treatment and management

Treatment is based on how severe the infection is, which organs are involved, your immune health, and how long symptoms have lasted.

Some mild, recent lung infections improve without antifungal medicine. A healthcare professional may recommend observation and follow-up rather than immediate treatment. Antifungal treatment may be considered when symptoms are prolonged, the illness is more substantial, or there is a higher risk of the infection spreading.

Itraconazole is a commonly used antifungal medicine for histoplasmosis. Severe lung infection, widespread infection, or infection involving the brain may initially require amphotericin B, often followed by a longer course of an oral antifungal.

Treatment can last for months. Some forms, including chronic cavitary or central nervous system histoplasmosis, usually need prolonged therapy. People with ongoing severe immune suppression may need longer-term medicine to reduce the chance of relapse.

Antifungal medicines can interact with many other medicines. Itraconazole absorption and blood levels can also be unpredictable. Blood tests may be used to check the medicine level, liver function, kidney function, blood counts, or response to treatment. Amphotericin B requires close monitoring because it can affect the kidneys and levels of minerals in the blood.

Follow-up may include symptom reviews, antigen tests, blood tests, or repeat chest imaging. A remaining lung nodule or calcified lymph node can represent an old, inactive infection and does not always require antifungal treatment.

## Complications

Most infections do not cause lasting complications. Problems are more likely after heavy exposure, severe lung inflammation, delayed treatment of widespread infection, or significant immune suppression.

Possible complications include:

Enlarged lymph nodes in the chest can occasionally press on nearby airways, blood vessels, or the food pipe. Rarely, excessive scar tissue develops in the central chest. This is called fibrosing mediastinitis and can obstruct major blood vessels or airways. It is an uncommon immune-related complication rather than ongoing fungal growth in most cases.

- Low oxygen levels or respiratory failure from severe lung inflammation
- Long-term lung cavities and scarring
- Spread to the liver, spleen, bone marrow, digestive tract, or adrenal glands
- Infection of the brain or the tissues surrounding it
- Low blood cell counts caused by bone marrow involvement
- Relapse after treatment, especially if immune suppression continues

## Prevention

There is no vaccine for histoplasmosis, and exposure cannot always be prevented. The fungus can be present in soil without any visible warning.

If you have a weakened immune system, avoiding activities likely to disturb large amounts of bird or bat droppings can lower your risk. Examples include cave exploration, cleaning heavily contaminated coops, and demolition of infested structures.

Large accumulations of droppings should be handled by people trained in safe cleanup. Simply sweeping or shovelling dry material can send spores into the air. Professional environmental assessment, dust-control methods, and properly fitted respiratory protection may be needed.

Routine contact with birds does not itself cause histoplasmosis. The main concern is disturbing contaminated soil or droppings. If you take immune-suppressing medicine or have HIV, discuss major occupational or recreational exposures during routine care.

## Living with it and what to expect

A mild lung infection often improves over several weeks, although cough and tiredness can last longer. Recovery may be gradual rather than immediate. Persistent symptoms should be reviewed because they may reflect continuing inflammation, another infection, or a complication.

People receiving antifungal treatment need regular follow-up over months. Taking medicine

consistently and reporting side effects or new medicines helps reduce problems with interactions and poor absorption.

Severe or disseminated histoplasmosis may require hospital care at first. Recovery can take months, and repeat antigen tests may be used to track improvement. Relapse is possible, particularly when the immune system remains severely weakened.

Old infection can leave small calcified nodules in the lungs or lymph nodes. These spots may be found years later on an X-ray or CT scan obtained for another reason. They often remain stable and do not mean that the infection is active.

Many people return to their usual activities after recovery. The longer-term outlook is less certain for people with major lung damage, infection involving the brain, or continuing immune suppression. Regular follow-up in these situations is important even after symptoms improve.

## When to get medical help

Arrange a routine medical appointment if you develop ongoing fever, cough, chest discomfort, unusual tiredness, or shortness of breath after disturbing soil or material containing bird or bat droppings. Mention where you have lived or travelled, even if the exposure happened outside your current area.

Seek prompt medical advice if symptoms are worsening, you are losing weight without trying, you cough up blood, or fever continues. Earlier assessment is particularly important if you have HIV, have received a transplant, or take immune-suppressing medicine.

Seek emergency care for:

These symptoms can have several causes, but they need urgent assessment.

- Severe or rapidly worsening difficulty breathing
- Blue or grey lips or skin
- New confusion, fainting, or difficulty staying awake
- A seizure
- Severe chest pain
- Signs of shock, such as extreme weakness with cold, clammy skin

## Common questions

Is histoplasmosis contagious?

Not through ordinary contact. It does not usually spread from person to person through coughing, touching, sharing food, or living together. Most infections come from breathing spores released from contaminated soil or debris.

Can histoplasmosis go away on its own?

A mild lung infection can resolve without antifungal medicine. More severe, prolonged, chronic, or widespread infection usually needs treatment. Your symptoms, immune health, test results, and organ involvement help guide that decision.

Does a positive Histoplasma test mean I have an active infection?

Not always. Antibody tests may remain positive after an earlier infection, and a calcified lung spot may represent healed infection. Antigen levels, symptoms, imaging, cultures, and tissue findings help determine whether infection is active.

How long does histoplasmosis last?

Mild symptoms may improve over several weeks, but tiredness or cough can continue longer. Severe or widespread infection may require months of treatment and recovery. Chronic lung or brain involvement can need extended follow-up.

Can histoplasmosis come back?

Yes. Relapse is more likely when the original infection was severe, treatment was incomplete, or the immune system remains very weak. A new environmental exposure can also cause another infection.

Is histoplasmosis the same as pneumonia?

Histoplasmosis can cause fungal pneumonia, meaning inflammation and infection in the lungs. It is not the same as common bacterial pneumonia, and antibiotics like amoxicillin or doxycycline do not treat the fungus. Testing is often needed because the symptoms can look similar.

## Sources

- Centers for Disease Control and Prevention. About Histoplasmosis
- Centers for Disease Control and Prevention. Clinical Overview of Histoplasmosis
- Infectious Diseases Society of America. 2025 Guideline Update on Histoplasmosis
- Wheat LJ, Freifeld AG, Kleiman MB, et al. Clinical Practice Guidelines for the Management of Patients with Histoplasmosis: 2007 Update by the Infectious Diseases Society of America. Clinical Infectious Diseases . 2007;45(7):807-825

- National Institutes of Health. Histoplasmosis: Adult and Adolescent Opportunistic Infections Guidelines
- Azar MM, Hage CA. Clinical Perspectives in the Diagnosis and Management of Histoplasmosis. Clinics in Chest Medicine . 2017;38(3):403-415