CONDITION

Rheumatoid lung disease

Rheumatoid lung disease is lung inflammation, scarring, or airway damage linked to rheumatoid arthritis.

WHAT IT IS
Lung inflammation or damage linked to rheumatoid arthritis

BODY SYSTEM
Lungs and breathing

MAIN SYMPTOMS
Breathlessness, dry cough, chest discomfort, tiredness

WHAT CAUSES IT
Immune inflammation, sometimes treatment-related lung injury

HOW IT IS DIAGNOSED
Chest CT, lung function tests, sometimes biopsy

MAIN TREATMENT
Immune-modifying treatment, lung support, sometimes antifibrotic therapy

CAN IT BE CURED?
No, established lung scarring may persist

IS IT AN EMERGENCY?
Sometimes, with sudden or severe breathing difficulty

LONG-TERM OUTLOOK
Often manageable, but progressive scarring can shorten life

Overview

Rheumatoid lung disease is a group of lung problems associated with rheumatoid arthritis. Rheumatoid arthritis is an autoimmune condition in which the immune system mistakenly attacks healthy tissue, especially the lining of the joints.

The lungs can be affected in several ways. The most important is rheumatoid arthritis-associated interstitial lung disease, often shortened to RA-ILD. This causes inflammation or scarring in the tissue surrounding the lungs' tiny air sacs. Scarring is also called fibrosis.

Other forms can affect:

Some people have mild changes found during testing and few symptoms. Others develop

ongoing breathlessness or a cough. A smaller group has lung scarring that continues to worsen.

Lung symptoms may appear after rheumatoid arthritis is diagnosed. Less often, they begin at about the same time or before clear joint symptoms. A breathing problem in someone with rheumatoid arthritis is not automatically rheumatoid lung disease. Infection, heart disease, a blood clot, smoking-related conditions, or a medicine reaction can cause similar symptoms.

- The airways that carry air through the lungs
- The pleura, the thin layers around the lungs
- Blood vessels in the lungs
- The tissue just beneath the lung lining, forming rheumatoid nodules

Symptoms

Symptoms depend on which part of the lungs is affected and how extensive the changes are.

Interstitial lung disease commonly causes a dry cough and shortness of breath. You may first notice breathlessness when walking uphill, climbing stairs, or exercising. If the condition progresses, ordinary daily activities may become more difficult.

Other possible symptoms include:

Pleural inflammation can cause sharp pain when breathing. Fluid may collect between the lung and chest wall, called a pleural effusion. A small effusion may cause no symptoms, while a larger one may cause breathlessness.

Airway involvement can lead to cough, wheezing, mucus, or repeated infections. Rheumatoid nodules in the lungs usually cause no symptoms and are often found on a scan taken for another reason.

Symptoms can develop gradually over months or years. A sudden change is less typical and needs prompt assessment for infection, a blood clot, a collapsed lung, medication-related inflammation, or a rapid worsening of lung disease.

- Tiredness or reduced stamina
- Chest discomfort
- Wheezing
- Repeated chest infections
- Sharp pain that worsens with a deep breath

- A feeling that you cannot take a full breath

Causes and risk factors

Rheumatoid lung disease is linked to the same abnormal immune activity involved in rheumatoid arthritis. Immune-driven inflammation can injure lung tissue. Healing may then leave scar tissue that makes the lungs stiffer and less able to transfer oxygen into the blood.

Not everyone with rheumatoid arthritis develops noticeable lung involvement. Factors associated with a higher risk of interstitial lung disease include:

These factors do not predict exactly who will develop lung disease. People without them may still be affected, while many people with risk factors never develop significant lung problems.

Medicines require separate consideration. Some treatments for rheumatoid arthritis suppress the immune system and can make infections more likely. A few medicines can also cause lung inflammation in rare cases. Methotrexate, for example, can rarely cause an acute inflammatory reaction called pneumonitis. This is different from the usual long-term scarring pattern of RA-ILD.

Do not stop a rheumatoid arthritis medicine on your own because of concerns about the lungs. Stopping treatment may allow joint and immune inflammation to worsen. New breathing symptoms should instead be assessed so that infection, medication effects, and rheumatoid lung involvement can be distinguished.

- Smoking or a past history of smoking
- Older age
- Being male
- More active or severe rheumatoid arthritis
- High levels of rheumatoid factor or anti-CCP antibodies
- Certain inherited traits

Diagnosis

There is no single test that identifies every type of rheumatoid lung disease. Diagnosis usually combines your symptoms, medical history, examination, breathing tests, and imaging.

A clinician may listen for fine crackling sounds in the lungs and check your oxygen level with a small finger sensor. Normal examination findings do not completely rule out early lung disease.

Pulmonary function tests measure how much air your lungs hold, how quickly you can breathe out, and how effectively oxygen moves from the lungs into the blood. One part, called the diffusion capacity or DLCO, can become abnormal when interstitial tissue or lung blood vessels are affected.

High-resolution computed tomography, or HRCT, provides detailed pictures of the lungs. It can show inflammation, scarring, airway damage, fluid, or nodules. Different patterns on HRCT can help the healthcare team estimate how the condition may behave and which treatments may be useful.

Other tests may include:

Bronchoscopy uses a thin camera passed into the airways to collect fluid or tissue. A lung biopsy removes a larger tissue sample. These procedures are not routinely needed when the scan, history, and other tests give a clear answer. They may be considered when the cause remains uncertain and the result would change treatment.

Assessment often involves both a rheumatology team and a respiratory team. A radiologist with experience in interstitial lung disease may also review the scans.

- Blood tests for inflammation, antibodies, infection, or medicine effects
- Oxygen measurements at rest and while walking
- A chest X-ray
- An echocardiogram to examine the heart and estimate lung artery pressure
- Sputum testing if infection is possible

Treatment and management

Treatment is matched to the type of lung involvement, the severity of symptoms, and whether tests show that it is stable or progressing. Mild, stable changes may be monitored rather than treated immediately.

When active immune inflammation is causing important or worsening lung disease, treatment may include medicines that reduce immune activity. These are often called immunosuppressants or disease-modifying medicines. The choice also takes account of joint symptoms, other medical conditions, infection risk, and previous treatment.

Corticosteroids like prednisone or hydrocortisone may be used in some inflammatory patterns or during certain sudden deteriorations. They can have significant side effects, especially when taken at higher doses or for long periods, so their role differs between people and lung patterns.

If lung fibrosis continues to progress despite appropriate management, an antifibrotic medicine may sometimes be considered. Antifibrotic treatment aims to slow further loss of lung function. It does not remove established scar tissue.

Supportive care can include:

Very advanced disease may lead to discussion of lung transplantation in selected people. This requires a detailed assessment of overall health, rheumatoid arthritis activity, and likely risks and benefits.

- Pulmonary rehabilitation, with supervised exercise and breathing education
- Oxygen when blood oxygen remains too low
- Treatment for airway mucus, wheezing, or infection
- Help to stop smoking
- Vaccination appropriate for age, health, and immune treatment
- Managing reflux or other conditions that may aggravate respiratory symptoms

Complications

Some forms of rheumatoid lung disease remain mild. Others can lead to lasting breathing problems.

Progressive fibrosis makes the lungs increasingly stiff. This can reduce oxygen levels and limit physical activity. Low oxygen may eventually require oxygen therapy.

Scarring and low oxygen can place extra strain on blood vessels in the lungs, contributing to pulmonary hypertension. This means increased pressure in the arteries that carry blood through the lungs and can eventually affect the right side of the heart.

Airway damage may make it harder to clear mucus, increasing the chance of repeated infections. Immune-suppressing treatment can add to infection risk.

An acute exacerbation is a rapid and serious worsening of interstitial lung disease over days or weeks. It causes new breathing difficulty and new changes on lung imaging. Similar symptoms can also come from infection, heart failure, or a blood clot, so urgent assessment is needed.

Pleural disease can occasionally cause a large fluid collection or a collapsed lung. Lung nodules may rarely break down, become infected, or form a cavity.

Prevention

Rheumatoid lung disease cannot always be prevented. Immune activity and inherited susceptibility cannot be fully controlled, and lung involvement may occur even when joint symptoms are being treated.

Not smoking is the clearest change you can make to reduce avoidable lung injury. If you smoke, support and stop-smoking treatment can improve the chance of quitting.

Regular rheumatoid arthritis care may help control inflammation and allows new symptoms to be reviewed. Take prescribed medicines as agreed, and report new cough, breathlessness, or fever rather than stopping treatment without advice.

Reducing exposure to respiratory infections is also useful, especially if you take immune-suppressing medicine. Your healthcare team can advise which vaccinations are appropriate for you and how their timing relates to treatment.

Living with it and what to expect

The course differs from person to person. Some people have small, stable abnormalities on a scan for many years. Others experience gradual loss of lung function, and a smaller number have more rapid progression.

Established fibrosis usually does not disappear. However, symptoms and test results do not always worsen steadily. Treatment may control inflammation or slow further scarring, and pulmonary rehabilitation can improve fitness and confidence even when a scan does not change.

Follow-up may include symptom reviews, lung function tests, walking oxygen measurements, and repeat scans when clinically needed. Changes in breathing tests over time are often more informative than a single result.

Pacing can help if breathlessness limits daily life. This means breaking tasks into smaller steps, resting before you become exhausted, and keeping commonly used items within easy reach. Regular activity within your limits helps protect muscle strength. A pulmonary rehabilitation team can help you exercise safely.

Tell your healthcare team if breathlessness affects sleep, work, travel, mood, or independence. Practical support, oxygen assessment, rehabilitation, and treatment of anxiety or low mood can all form part of care.

When to get medical help

Arrange a routine medical review if you develop a persistent dry cough, gradually increasing breathlessness, reduced exercise tolerance, or repeated chest infections. These symptoms need assessment, but they do not necessarily mean that rheumatoid arthritis has affected your lungs.

Seek urgent medical advice the same day if you have:

Call emergency services if you have severe difficulty breathing, blue or grey lips, confusion, fainting, crushing or persistent chest pain, or an inability to speak in full sentences. These symptoms can occur with several medical emergencies and should not wait for a routine appointment.

- A clear, sudden worsening of your usual breathing
- Fever with cough or breathlessness, especially during immune-suppressing treatment
- New sharp pain when breathing
- Coughing up blood
- A rapid fall in oxygen readings from your normal level

Common questions

Is rheumatoid lung disease the same as RA-ILD?

Not exactly. RA-ILD is the form that affects the supporting tissue around the air sacs, causing inflammation or fibrosis. Rheumatoid lung disease is a broader term that also includes airway disease, pleural inflammation, fluid around the lungs, nodules, and lung blood vessel problems.

Can lung problems start before rheumatoid arthritis?

Yes. Lung symptoms or scan changes occasionally appear before obvious joint inflammation. Doctors may use blood tests, examination findings, scans, and follow-up over time to understand whether the conditions are connected.

Does methotrexate cause rheumatoid lung disease?

Methotrexate can rarely cause a separate, usually more sudden inflammatory lung reaction. Evidence does not support treating every case of long-term rheumatoid interstitial lung disease as methotrexate damage. New respiratory symptoms still need prompt review, particularly after starting or changing any medicine.

Can rheumatoid lung scarring heal?

Established fibrosis is usually permanent. Inflammation around the scarred areas may improve, and treatment may slow additional damage. Breathing, stamina, and daily function may also

improve with rehabilitation and supportive care even if scarring remains visible.

Can I exercise with rheumatoid lung disease?

Many people can and should remain active within safe limits. The suitable intensity depends on symptoms, oxygen levels, joint health, and heart health. Pulmonary rehabilitation offers supervised exercise and advice for managing breathlessness.

Is rheumatoid lung disease contagious?

No. Autoimmune inflammation and fibrosis cannot spread to another person. However, respiratory infections can cause similar symptoms and may be more serious during immune-suppressing treatment.

Sources

- Johnson SR, Bernstein EJ, Bolster MB, and colleagues. 2023 American College of Rheumatology and American College of Chest Physicians guideline for screening and monitoring interstitial lung disease in people with systemic autoimmune rheumatic diseases . Arthritis & Rheumatology . 2024.
- Johnson SR, Bernstein EJ, Bolster MB, and colleagues. 2023 American College of Rheumatology and American College of Chest Physicians guideline for treatment of interstitial lung disease in people with systemic autoimmune rheumatic diseases . Arthritis & Rheumatology . 2024.
- Kadura S, Raghu G. Rheumatoid arthritis-interstitial lung disease: manifestations and current concepts in pathogenesis and management . European Respiratory Review . 2021;30:210011.
- Shaw M, Collins BF, Ho LA, Raghu G. Rheumatoid arthritis-associated lung disease . European Respiratory Review . 2015;24:1-16.
- Fragoulis GE, Nikiphorou E, Larsen J, Korsten P, Conway R. Methotrexate-associated pneumonitis and rheumatoid arthritis-associated interstitial lung disease: current concepts for the diagnosis and treatment . Frontiers in Medicine . 2019;6:238.