CONDITION

Restrictive cardiomyopathy

Restrictive cardiomyopathy is a condition in which stiff heart muscle cannot relax and fill with blood normally.

WHAT IT IS
Stiff heart muscle that cannot fill normally

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Breathlessness, swelling, tiredness, irregular heartbeat

WHAT CAUSES IT
Inherited changes, protein deposits, scarring, or unknown causes

HOW IT IS DIAGNOSED
Heart imaging, blood tests, sometimes heart muscle biopsy

MAIN TREATMENT
Cause-specific care and relief of fluid buildup

CAN IT BE CURED?
Sometimes - treatable cause or heart transplant

IS IT AN EMERGENCY?
Sometimes - severe breathlessness, chest pain, or fainting

LONG-TERM OUTLOOK
Often progressive, shaped by cause and treatment response

Overview

Restrictive cardiomyopathy is a condition in which the heart muscle becomes stiff. The lower chambers of the heart, called the ventricles, cannot relax and fill with blood normally between heartbeats.

The heart may still squeeze normally, especially early in the condition. However, less blood enters the ventricles, so the heart may not pump enough blood around the body. Pressure can also build up behind the heart, causing fluid to collect in the lungs, abdomen, legs, or feet.

Restrictive cardiomyopathy is not one single disease. It is a pattern of heart dysfunction that can result from several underlying conditions. These include abnormal protein deposits, excess iron, inflammation, scarring, and inherited changes in heart-muscle proteins. Sometimes no cause is found.

It is important to identify the cause because treatment and outlook can be very different. Some causes have specific treatments that may slow or partly reverse heart damage. Other forms mainly require treatment of symptoms and complications.

Restrictive cardiomyopathy is different from constrictive pericarditis. Both can stop the heart from filling normally, but constrictive pericarditis is caused by a thickened or scarred sac around the heart rather than stiff heart muscle. Tests are often needed to tell them apart.

Symptoms

Symptoms may develop gradually. Some people have few symptoms at first, while others become unwell more quickly because of the underlying cause.

Common symptoms include:

Swelling and breathlessness occur when pressure inside the heart rises and fluid backs up into the lungs or veins. An irregular rhythm can develop because the upper chambers of the heart, called the atria, often become enlarged.

These symptoms can occur in many other heart, lung, kidney, or blood conditions. Having them does not by itself mean that you have restrictive cardiomyopathy.

- Breathlessness during activity or when lying flat
- Tiredness, weakness, or reduced ability to exercise
- Swelling of the feet, ankles, legs, or abdomen
- A fast, pounding, or irregular heartbeat
- Feeling light-headed or faint
- Reduced appetite or feeling full quickly
- Weight gain caused by retained fluid
- Chest discomfort

Causes and risk factors

Restrictive cardiomyopathy may occur when material collects within the heart muscle, when the muscle becomes scarred, or when inherited changes affect how it relaxes.

Important causes include:

The underlying causes are not equally common in every age group. In children, inherited forms

and certain rare inflammatory or scarring conditions are particularly important. In older adults, cardiac amyloidosis may be considered more often.

- Cardiac amyloidosis: Abnormal proteins called amyloid build up in the heart. Different types of amyloidosis require different treatment.
- Iron overload: Excess iron can collect in organs, including the heart. This may happen with hereditary haemochromatosis or repeated blood transfusions.
- Sarcoidosis: Clusters of inflammatory cells can affect the heart and disrupt its rhythm or pumping function.
- Eosinophilic conditions: High levels of a type of white blood cell called an eosinophil can inflame and scar the inner heart.
- Radiation exposure: Previous radiation treatment to the chest can sometimes cause heart scarring years later.
- Connective tissue conditions: Conditions such as systemic sclerosis may affect the heart muscle.
- Inherited cardiomyopathy: Changes in certain genes can affect proteins within heart-muscle cells. A family history of cardiomyopathy, unexplained heart failure, or sudden cardiac death can be relevant.
- Unknown cause: In some people, testing does not identify a specific reason. This is called idiopathic restrictive cardiomyopathy.

Diagnosis

Diagnosis usually starts with a medical history, physical examination, and questions about symptoms and family heart problems. There is no single test that confirms every form of restrictive cardiomyopathy.

An electrocardiogram, or ECG, records the heart's electrical activity. It may show an irregular rhythm, conduction problems, or patterns suggesting thickened or damaged heart muscle.

An echocardiogram uses ultrasound to show the heart's structure and movement. It can reveal enlarged atria, abnormal filling of the ventricles, increased pressure in the heart, or thickened walls. It also measures the ejection fraction, which is the percentage of blood squeezed out with each beat. This can remain normal until later in the condition.

Cardiac magnetic resonance imaging, or cardiac MRI, provides detailed images of the heart muscle. It may detect inflammation, scarring, iron, or patterns associated with amyloid deposits.

Blood and urine tests may look for organ problems or a specific cause. Testing may include checks for abnormal proteins, iron levels, inflammation, kidney and liver function, and substances released when the heart is under strain.

Other tests may include:

A biopsy is not needed for everyone. It may be useful when imaging and laboratory tests do not give a clear answer or when identifying the exact cause will change treatment.

- Genetic testing when an inherited form is suspected
- Heart rhythm monitoring over one or more days
- Exercise testing to assess the heart's response to activity
- A nuclear medicine scan for certain forms of cardiac amyloidosis
- Cardiac catheterisation to measure pressures inside the heart
- A biopsy, in which a small heart-muscle sample is examined

Treatment and management

Treatment aims to address the cause when possible, reduce symptoms, and prevent complications. Care is usually coordinated by a cardiology team. Some people benefit from a centre experienced in cardiomyopathy or amyloidosis.

Diuretics like furosemide or hydrochlorothiazide , sometimes called water tablets, may help the kidneys remove excess salt and water. This can reduce breathlessness and swelling. They must be balanced carefully because a heart with restrictive filling may be sensitive to having too little circulating blood.

Treatment for the underlying cause may include therapies that reduce the production or effects of amyloid proteins, remove excess iron, or control inflammation. The correct approach depends on the exact diagnosis. These treatments are not interchangeable.

An irregular rhythm such as atrial fibrillation may require treatment to control the heart rate or rhythm. Blood-thinning medicine may be recommended to reduce the risk of a clot and stroke. The decision considers the rhythm, clotting risk, bleeding risk, and underlying condition.

Some medicines commonly used for other forms of heart failure may be less helpful in restrictive cardiomyopathy or may cause low blood pressure. Treatment therefore needs individual review rather than a standard heart-failure plan.

A pacemaker may be considered if the heartbeat becomes too slow or electrical signals do not travel normally through the heart. An implantable cardioverter-defibrillator may be appropriate

for selected people at higher risk of dangerous rhythms, although it does not correct the stiffness of the heart.

For severe disease that continues despite treatment, heart transplantation may be considered. Eligibility depends on overall health, the underlying cause, and whether other organs are affected.

Cardiac rehabilitation or an individually planned activity programme may help some people remain active safely. Sudden major changes in exercise, fluid intake, salt intake, or supplements should be discussed with the care team.

Complications

Restrictive cardiomyopathy can lead to heart failure, meaning the heart cannot meet the body's needs without pressure building up. This may cause repeated fluid retention and reduced ability to manage daily activity.

The enlarged upper heart chambers can develop atrial fibrillation. Blood may then pool and form a clot, increasing the risk of stroke or a clot travelling elsewhere in the body.

Other possible complications include:

The likelihood of each complication is strongly influenced by the cause and severity of the condition. Regular monitoring is intended to detect changes before they cause a crisis.

- Low blood pressure
- Fainting
- Kidney or liver problems related to poor circulation and congestion
- Electrical conduction problems
- Dangerous ventricular heart rhythms
- Blood clots inside the heart
- Sudden cardiac arrest

Prevention

Many forms of restrictive cardiomyopathy cannot be prevented. Inherited gene changes, amyloid disorders, and unexplained forms are not caused by everyday choices.

Early identification and treatment of an underlying condition may reduce further heart damage in some cases. This can be relevant for iron overload, inflammatory disease, or certain types of

amyloidosis, but it cannot guarantee that cardiomyopathy will be prevented.

If an inherited form is identified, genetic counselling can explain what the result may mean for close relatives. Relatives may be offered heart checks or genetic testing. This does not prevent the gene change, but it may allow earlier monitoring and treatment.

Living with it and what to expect

The course of restrictive cardiomyopathy differs according to its cause. Some forms progress slowly over years. Others can worsen more quickly or affect organs outside the heart. Treatments for specific causes may stabilise the condition, but existing scarring may not disappear.

Follow-up commonly includes symptom reviews, blood tests, ECGs, echocardiograms, and sometimes repeat rhythm monitoring or MRI. Appointments also allow medicines to be adjusted as blood pressure, kidney function, swelling, or heart rhythm changes.

It can be useful to track body weight and symptoms if your care team recommends it. A rapid rise in weight may reflect fluid retention rather than body fat. Report a clear change from your usual pattern rather than changing medication on your own.

Many people continue with work, family life, travel, and suitable physical activity, although they may need to pace themselves. Symptoms can limit strenuous exercise, and advanced disease may affect independence. A rehabilitation team can help match activity to current ability.

Restrictive cardiomyopathy often requires long-term care. Even when symptoms are controlled, routine follow-up remains important because rhythm problems and fluid buildup can return. Emotional support may also be helpful when uncertainty or physical limits affect daily life.

When to get medical help

Arrange a routine appointment if you develop ongoing breathlessness, ankle swelling, unexplained tiredness, reduced exercise ability, or repeated palpitations. These symptoms deserve assessment but are not always caused by restrictive cardiomyopathy.

If you already have the condition, contact your care team promptly for worsening swelling, increasing breathlessness, a rapid weight increase, new palpitations, or dizziness. These changes may mean that fluid levels, heart rhythm, or treatment need review.

Seek emergency help for:

A collapse or suspected cardiac arrest requires immediate emergency services and cardiopulmonary resuscitation if someone nearby is able to provide it.

- Severe or sudden breathlessness
- Chest pain that is new, intense, or persistent
- Fainting, especially during activity
- A very fast or irregular heartbeat with weakness or breathlessness
- Signs of stroke, such as facial drooping, arm weakness, or speech difficulty
- Collapse, unresponsiveness, or absent normal breathing

Common questions

Is restrictive cardiomyopathy the same as heart failure?

No. Restrictive cardiomyopathy is a problem with the heart muscle. It can cause heart failure when stiffness prevents normal filling and raises pressure inside the heart. A person can have early restrictive cardiomyopathy before clear heart-failure symptoms appear.

Can restrictive cardiomyopathy be cured?

Sometimes the underlying cause can be treated effectively, limiting or partly improving heart dysfunction. Established scarring is often permanent. A heart transplant can replace the affected heart in selected people, but it is major treatment and may not address a condition affecting other organs.

Is restrictive cardiomyopathy inherited?

Some forms are inherited, but many are not. A genetic cause is more likely when several relatives have cardiomyopathy, unexplained heart failure, or sudden death. Genetic testing is most useful when combined with specialist counselling and a detailed family history.

What is the life expectancy with restrictive cardiomyopathy?

There is no single life-expectancy figure that applies to everyone. Outlook is shaped by the cause, how advanced the condition is, whether other organs are involved, and how well treatment works. The treating team can interpret these factors more meaningfully than a general online estimate.

Can I exercise with restrictive cardiomyopathy?

Many people can remain active, but the safe level is individual. Gentle or moderate activity may be suitable when the condition is stable. Intense exercise may not be appropriate for people with fainting, severe symptoms, or dangerous rhythms. An exercise plan should reflect current

test results and symptoms.

What is the difference between restrictive and hypertrophic cardiomyopathy?

Restrictive cardiomyopathy is defined mainly by impaired filling caused by stiff ventricles. Hypertrophic cardiomyopathy involves abnormal thickening of the heart muscle, usually because of an inherited gene change. Both can affect filling, so imaging and other tests are needed to distinguish them.

Sources

- European Society of Cardiology. 2023 ESC Guidelines for the management of cardiomyopathies . European Heart Journal . 2023;44:3503-3626.
- Muchtar E, Blauwet LA, Gertz MA. Restrictive cardiomyopathy: genetics, pathogenesis, clinical manifestations, diagnosis, and therapy . Circulation Research . 2017;121:819-837.
- Kittleson MM, Ruberg FL, Ambardekar AV, et al. 2023 ACC Expert Consensus Decision Pathway on comprehensive multidisciplinary care for the patient with cardiac amyloidosis . Journal of the American College of Cardiology . 2023;81:1076-1126.
- Garcia-Pavia P, Rapezzi C, Adler Y, et al. Diagnosis and treatment of cardiac amyloidosis: a position statement of the ESC Working Group on Myocardial and Pericardial Diseases . European Heart Journal . 2021;42:1554-1568.
- Merck Manual Professional Edition. Restrictive cardiomyopathy . Reviewed and revised May 2025.