CONDITION

Coronary artery disease

Coronary artery disease is narrowing of the arteries that supply blood to the heart muscle.

WHAT IT IS
Narrowing of heart arteries from fatty plaque buildup

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Chest pressure, breathlessness, arm or jaw pain, fatigue

WHAT CAUSES IT
Artery inflammation and cholesterol-rich plaque buildup

HOW IT IS DIAGNOSED
Coronary CT angiography, stress testing, or invasive angiography

MAIN TREATMENT
Lifestyle changes, medicines, and procedures restoring blood flow

CAN IT BE CURED?
No - treatment manages symptoms and risk

IS IT AN EMERGENCY?
Sometimes - persistent chest pressure may signal heart attack

LONG-TERM OUTLOOK
Often manageable, but heart attack risk remains

Overview

Coronary artery disease, or CAD, is a condition affecting the arteries that supply blood and oxygen to your heart muscle. It is also called coronary heart disease.

CAD develops when fatty material builds up in an artery wall. This material forms a patch called plaque. Plaque contains cholesterol, inflammatory cells, calcium, and other substances. Over time, the artery may become narrower or less able to expand.

Narrowing can limit blood flow when your heart needs more oxygen, such as during exercise. This may cause chest discomfort called angina. If a plaque suddenly breaks open, a blood clot can form and block the artery. This can cause a heart attack.

Some people have CAD without noticeable symptoms. Finding and managing it still matters because treatment can ease symptoms and lower the risk of heart attack and other

complications.

Symptoms

The most recognised symptom is angina. It may feel like pressure, squeezing, tightness, heaviness, or burning in the chest. Some people mistake it for indigestion.

Discomfort may spread to an arm, shoulder, neck, jaw, back, or upper abdomen. You may also experience:

Stable angina follows a pattern. It often starts with physical activity, cold weather, emotional stress, or a heavy meal. It usually settles with rest or prescribed angina medicine.

Symptoms are not always typical. Some people mainly notice breathlessness, fatigue, nausea, or discomfort outside the chest. CAD can also be "silent," meaning it causes no clear symptoms.

A new symptom, a major change in your usual angina, or discomfort at rest may represent an acute coronary syndrome. This includes a heart attack and requires urgent assessment.

- Shortness of breath
- Unusual tiredness or reduced exercise ability
- Sweating, nausea, or light-headedness
- A fast or irregular heartbeat

Causes and risk factors

CAD usually results from atherosclerosis. This is the long-term process in which cholesterol-rich plaque and inflammation affect an artery wall. It is not simply caused by eating fatty food, and it is rarely due to one factor alone.

Factors that raise the chance of developing CAD include:

Some inflammatory conditions and inherited cholesterol disorders also increase risk. Stress, poor sleep, and social circumstances can affect heart health indirectly by influencing blood pressure, activity, smoking, and access to care.

You cannot change your age, family history, or inherited traits. However, managing changeable risk factors can still reduce future risk.

- Smoking or regular exposure to tobacco smoke

- High blood pressure
- High LDL cholesterol, sometimes called "bad" cholesterol
- Diabetes
- Older age
- A close family history of early heart or circulation conditions
- Chronic kidney disease
- Limited physical activity
- Excess body weight, particularly around the waist

Diagnosis

Your assessment usually begins with a discussion about your symptoms, health history, medicines, and family history. A physical examination may look for other heart or circulation problems.

An electrocardiogram, or ECG, records the heart's electrical activity. It may show evidence of reduced blood flow or a previous heart attack, but a normal ECG does not rule out CAD.

Blood tests can measure cholesterol, blood sugar, kidney function, and other factors. If a heart attack is suspected, a blood test for troponin checks for injury to heart muscle.

Tests used to investigate possible stable CAD may include:

The most suitable test depends on your symptoms, previous results, other conditions, and local practice. An echocardiogram, which uses ultrasound, may also assess the heart's pumping function and valves.

- Coronary CT angiography: A CT scan using contrast dye to show narrowing and plaque in the coronary arteries
- Stress testing: Exercise or medicine makes the heart work harder while an ECG or scan looks for reduced blood flow
- Invasive coronary angiography: A thin tube is passed through an artery, and contrast dye shows the coronary arteries on X-rays

Treatment and management

Treatment aims to relieve symptoms, protect the heart, and lower the chance of a heart attack

or stroke. Your plan may combine lifestyle changes, medicines, and a procedure.

Stopping smoking is one of the most helpful changes for people who smoke. Support may include counselling and medicines. Regular activity, a heart-healthy eating pattern, and management of blood pressure, cholesterol, diabetes, sleep, and weight can also reduce risk.

Cardiac rehabilitation provides supervised exercise, education, and emotional support. It is commonly offered after a heart attack or heart procedure and may also help some people with stable CAD.

Medicines may include:

These medicines are not suitable for everyone. The choice depends on factors such as bleeding risk, blood pressure, heart rate, kidney function, and other conditions. Do not stop a heart medicine suddenly without medical advice.

A procedure may be considered if symptoms continue despite treatment or if testing shows important narrowing.

During coronary angioplasty, also called percutaneous coronary intervention or PCI, a small balloon opens the artery. A mesh tube called a stent is usually placed to keep it open. Coronary artery bypass grafting, or CABG, uses blood vessels from elsewhere in the body to create new routes around narrowed arteries.

A stent or bypass can improve blood flow, but it does not remove the underlying tendency to form plaque. Long-term risk management remains important.

Medicines commonly used for this include perindopril . Which one suits you, if any, is a decision for you and your doctor.

- Antiplatelet medicine to reduce unwanted blood clots
- Statins or other cholesterol-lowering medicines to lower LDL cholesterol and reduce plaque-related risk
- Beta blockers like metoprolol or propranolol , calcium-channel blockers, or long-acting nitrates to prevent angina
- Short-acting nitrate medicine to relieve an angina episode
- Blood-pressure medicines that may also protect the heart or kidneys

Complications

CAD can lead to:

Living with recurring symptoms can also affect sleep, confidence, mood, work, and

relationships. Anxiety after chest pain or a heart event is common and can be addressed as part of cardiac care.

- Heart attack
- Heart failure, when the heart cannot pump as well as the body needs
- Abnormal heart rhythms
- Sudden cardiac arrest
- Ongoing angina that limits activity

Prevention

CAD cannot always be prevented. Age, family history, and inherited cholesterol conditions cannot be changed. Even so, reducing changeable risks can lower the chance of developing CAD or slow its progression.

Helpful steps include avoiding tobacco, being physically active, and eating more vegetables, fruit, whole grains, beans, nuts, fish, and unsaturated fats. Limiting highly processed foods, excess salt, and foods high in saturated or trans fats can support cholesterol and blood-pressure control.

Regular checks may identify high blood pressure, diabetes, or abnormal cholesterol before symptoms appear. If you already have CAD, prevention means reducing the risk of further narrowing, heart attack, and stroke rather than removing all existing plaque.

Living with it and what to expect

CAD is usually a long-term condition. Symptoms may remain stable for months or years, improve with treatment, or change as plaque progresses. No single course applies to everyone.

Many people continue working, travelling, exercising, and having sex after treatment. The safe level of activity is influenced by your symptoms, heart function, and any recent heart attack or procedure. Cardiac rehabilitation can help you rebuild confidence safely.

Keep taking prescribed medicines even when you feel well. Some are intended to lower future risk rather than produce a noticeable daily effect. Routine follow-up may include reviews of symptoms, blood pressure, cholesterol, diabetes, medicine side effects, and activity.

Know your usual angina pattern and follow any action plan you have been given. Arrange a review if symptoms begin with less activity, last longer, or occur more often. These changes

are not part of routine stable angina.

When to get medical help

Call your local emergency number if you have new or severe chest pressure, squeezing, or heaviness that does not settle within a few minutes of rest. This is especially important if it spreads to your arm, jaw, neck, back, or abdomen, or occurs with breathlessness, sweating, nausea, faintness, or collapse.

If you have prescribed medicine for angina, follow your emergency instructions. Call for emergency help if the discomfort does not respond as expected. Do not drive yourself to hospital.

Seek urgent medical assessment if:

Arrange routine follow-up if stable symptoms are limiting your activities, you are having medicine side effects, or you need help managing smoking, blood pressure, cholesterol, diabetes, diet, or activity.

- Your usual angina occurs at rest
- Episodes become more frequent, severe, or prolonged
- Symptoms begin with much less activity than before
- You develop new breathlessness, fainting, or a sustained irregular heartbeat

Common questions

Can coronary artery disease be reversed?

Plaque may sometimes become more stable or shrink slightly with intensive risk-factor treatment, but established CAD is not considered cured. Treatment focuses on slowing progression, preventing clots, improving blood flow, and reducing symptoms.

Can I have CAD with a normal ECG?

Yes. An ECG records electrical activity during a short period and may be normal between angina episodes. Further assessment may include coronary CT angiography, stress testing, or invasive angiography.

Is angina the same as a heart attack?

No. Angina usually means the heart muscle is temporarily receiving too little oxygen without permanent injury. A heart attack occurs when blood flow is blocked long enough to damage

heart muscle. New, persistent, or changing chest discomfort needs urgent assessment.

Can I exercise with coronary artery disease?

Physical activity is an important part of long-term care for most people with stable CAD. The appropriate type and intensity depend on your symptoms and recent treatment. Stop and seek help if activity causes chest discomfort that does not settle as expected. Cardiac rehabilitation can provide a structured starting point.

Will I need a stent or bypass surgery?

Not everyone does. Many people are managed with medicines and lifestyle changes. A procedure may be recommended for symptoms that remain troublesome or for certain patterns of artery narrowing. The choice also depends on heart function, diabetes, other health conditions, and your preferences.

What should I eat if I have CAD?

A heart-healthy pattern emphasises vegetables, fruit, whole grains, beans, nuts, fish, and unsaturated oils. It limits excess salt, highly processed foods, and foods rich in saturated or trans fats. This eating pattern supports treatment but does not replace prescribed medicine.

Sources

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