**Coronary Artery Disease**

Coronary artery disease (CAD) is a condition that affects your coronary arteries, which supply blood to your heart. With CAD, plaque build up narrows or blocks one or more of your coronary arteries. Chest discomfort (angina) is the most common symptom. CAD can lead to a heart attack or other complications like arrhythmia or heart failure.

**What is coronary artery disease?**

Coronary artery disease (CAD) is a narrowing or blockage of your coronary arteries, usually due to plaque buildup. Your [coronary arteries](https://my.clevelandclinic.org/health/body/22973-coronary-arteries) supply oxygen-rich blood to your [heart](https://my.clevelandclinic.org/health/body/21704-heart). Plaque buildup in these arteries limits how much blood can reach your heart.

Picture two traffic lanes that merge into one due to construction. Traffic keeps flowing, just more slowly. With CAD, you might not notice anything is wrong until the plaque triggers a blood clot. The blood clot is like a concrete barrier in the middle of the road. Traffic stops. Similarly, blood can’t reach your heart, and this causes a heart attack.

You might have CAD for many years and not have any symptoms until you experience a heart attack. That’s why CAD is a “silent killer.”

Other names for CAD include coronary heart disease (CHD) and ischemic heart disease. It’s also what most people mean when they use the general term “heart disease.”

**Forms of coronary artery disease**

There are two main forms of coronary artery disease:

* **Stable ischemic heart disease**: This is the chronic form. Your coronary arteries gradually narrow over many years. Over time, your heart receives less oxygen-rich blood. You may feel some symptoms, but you’re able to live with the condition day to day.
* **Acute coronary syndrome**: This is the sudden form that’s a medical emergency. The plaque in your coronary artery suddenly ruptures and forms a [blood clot](https://my.clevelandclinic.org/health/diseases/17675-blood-clots) that blocks blood flow to your heart. This abrupt blockage causes a heart attack.

**How common is coronary artery disease?**

Coronary artery disease is very common. Over 18 million adults in the U.S. have coronary artery disease. That’s roughly the combined populations of New York City, Los Angeles, Chicago and Houston.

In 2019, coronary artery disease killed 360,900 people in the U.S. That’s enough people to fill Yankee Stadium more than seven times.

**Who does coronary artery disease affect?**

Coronary artery disease is the leading cause of death in the U.S. and around the world. This is true for men and people assigned male at birth (AMAB), as well as women and people assigned female at birth (AFAB).

In the U.S., coronary artery disease affects nearly 1 in 10 people aged 40 to 80. About 1 in 5 deaths from CAD occur in people under age 65.

**How does coronary artery disease affect my body?**

The main complication of coronary artery disease is a [heart attack](https://my.clevelandclinic.org/health/diseases/16818-heart-attack-myocardial-infarction). This is a medical emergency that can be fatal. Your heart muscle starts to die because it’s not receiving enough blood. You need prompt medical attention to restore blood flow to your heart and save your life.

Over the years, CAD can also weaken your heart and lead to complications, including:

* [Arrhythmias](https://my.clevelandclinic.org/health/diseases/16749-arrhythmia) (like [atrial fibrillation](https://my.clevelandclinic.org/health/diseases/16765-atrial-fibrillation-afib)).
* [Cardiac arrest](https://my.clevelandclinic.org/health/diseases/21736-cardiac-arrest).
* [Cardiogenic shock](https://my.clevelandclinic.org/health/diseases/17837-cardiogenic-shock).
* [Heart failure](https://my.clevelandclinic.org/health/diseases/17069-heart-failure-understanding-heart-failure).

## SYMPTOMS AND CAUSES

### What are the symptoms of coronary artery disease?

You may have no symptoms of coronary artery disease for a long time. CAD is a chronic condition. Plaque buildup takes many years, even decades. But as your arteries narrow, you may notice mild symptoms. These symptoms indicate your heart is pumping harder to deliver oxygen-rich blood to your body.

Symptoms of chronic CAD include:

* [**Stable angina**](https://my.clevelandclinic.org/health/diseases/21847-stable-angina): This is the most common symptom. Stable angina is temporary chest pain or discomfort that comes and goes in a predictable pattern. You’ll usually notice it during physical activity or emotional distress. It goes away when you rest or take nitroglycerin (medicine that treats angina).
* [**Shortness of breath (dyspnea)**](https://my.clevelandclinic.org/health/symptoms/16942-shortness-of-breath-dyspnea): Some people feel short of breath during light physical activity.

Sometimes, the first symptom of CAD is a heart attack. Symptoms of a heart attack include:

* [Chest pain or discomfort (angina)](https://my.clevelandclinic.org/health/diseases/21489-angina). Angina can range from mild discomfort to severe pain. It may feel like heaviness, tightness, pressure, aching, burning, numbness, fullness, squeezing or a dull ache. The discomfort may spread to your shoulder, arm, neck, back or jaw.
* Shortness of breath or trouble breathing.
* Feeling [dizzy](https://my.clevelandclinic.org/health/symptoms/6422-dizziness) or lightheaded.
* Heart palpitations.
* Feeling tired.
* Nausea, stomach discomfort or vomiting. This may feel like [indigestion](https://my.clevelandclinic.org/health/symptoms/7316-indigestion-dyspepsia).
* Weakness.

Women and people AFAB are more likely to have [additional, atypical symptoms](https://my.clevelandclinic.org/health/diseases/17645-women--cardiovascular-disease) that include:

* Shortness of breath, [fatigue](https://my.clevelandclinic.org/health/symptoms/21206-fatigue) and insomnia that began before the heart attack.
* Pain in their back, shoulders, neck, arms or belly.
* [Heart racing](https://my.clevelandclinic.org/health/diseases/22108-tachycardia).
* Feeling hot or flushed.

### What causes coronary artery disease?

[Atherosclerosis](https://my.clevelandclinic.org/health/diseases/16753-atherosclerosis-arterial-disease) causes coronary artery disease. Atherosclerosis is the gradual buildup of plaque in arteries throughout your body. When the plaque affects blood flow in your coronary arteries, you have coronary artery disease.

Plaque consists of [cholesterol](https://my.clevelandclinic.org/health/articles/23922-what-is-cholesterol), waste products, calcium and fibrin (a substance that helps your blood clot). As plaque continues to collect along your artery walls, your arteries become narrow and stiff.

Plaque can clog or damage your arteries, which limits or stops blood flow to a certain part of your body. When plaque builds up in your coronary arteries, your heart muscle can’t receive enough blood. So, your heart can’t get the oxygen and nutrients it needs to work properly. This condition is called [myocardial ischemia](https://my.clevelandclinic.org/health/diseases/17848-myocardial-ischemia). It leads to chest discomfort (angina) and puts you at risk for a heart attack.

People who have plaque buildup in their coronary arteries often have buildup elsewhere in their body, too. This can lead to conditions like [carotid artery disease](https://my.clevelandclinic.org/health/diseases/16845-carotid-artery-disease-carotid-artery-stenosis) and [peripheral artery disease](https://my.clevelandclinic.org/health/diseases/17357-peripheral-artery-disease-pad).

### What are the risk factors for coronary artery disease?

There are many risk factors for coronary artery disease. Some you can’t control. Others you may be able to control by making lifestyle changes or taking medications. Talk with your provider about the risk factors listed below and how you can manage them.

#### Risk factors you can’t control (non-modifiable risk factors)

* **Age**: As you get older, your risk for CAD goes up. Men and people AMAB face a higher risk after age 45. Women and people AFAB face a higher risk after age 55.
* **Family history**: You have a higher risk if your biological family members have heart disease. It’s especially important to learn if they have premature heart disease. This means they were diagnosed at a young age (father or brother before age 55, mother or sister before age 65).

#### Lifestyle factors that raise your risk

* Diet high in [saturated fat](https://my.clevelandclinic.org/health/articles/17155-fats-know-your-fats) or refined carbohydrates.
* Lack of physical activity.
* [Sleep](https://my.clevelandclinic.org/health/articles/12148-sleep-basics) deprivation.
* [Smoking](https://my.clevelandclinic.org/health/articles/17488-smoking), vaping or other tobacco use.

#### Cardiovascular conditions that raise your risk

* Atherosclerosis.
* [High blood pressure](https://my.clevelandclinic.org/health/diseases/4314-hypertension-high-blood-pressure).
* [High LDL (“bad”) cholesterol](https://my.clevelandclinic.org/health/articles/11920-cholesterol-numbers-what-do-they-mean).
* High triglycerides ([hypertriglyceridemia](https://my.clevelandclinic.org/health/diseases/23942-hypertriglyceridemia)).

#### Other medical conditions that raise your risk

* [Anemia](https://my.clevelandclinic.org/health/diseases/3929-anemia).
* [Autoimmune diseases](https://my.clevelandclinic.org/health/diseases/21624-autoimmune-diseases), including [lupus](https://my.clevelandclinic.org/health/diseases/4875-lupus) and [rheumatoid arthritis](https://my.clevelandclinic.org/health/diseases/4924-rheumatoid-arthritis).
* [Chronic kidney disease](https://my.clevelandclinic.org/health/diseases/15096-kidney-disease-chronic-kidney-disease).
* [Diabetes](https://my.clevelandclinic.org/health/diseases/7104-diabetes-mellitus-an-overview).
* [HIV/AIDS](https://my.clevelandclinic.org/health/diseases/4251-aids--hiv).
* [Metabolic syndrome](https://my.clevelandclinic.org/health/diseases/10783-metabolic-syndrome).
* Overweight/[obesity](https://my.clevelandclinic.org/health/diseases/11209-weight-control-and-obesity).
* [Sleep disorders](https://my.clevelandclinic.org/health/articles/11429-common-sleep-disorders) like [sleep apnea](https://my.clevelandclinic.org/health/diseases/8718-sleep-apnea).

#### Risk factors that affect women and people assigned female at birth

* Early [menopause](https://my.clevelandclinic.org/health/diseases/21841-menopause) (before age 40).
* [Endometriosis](https://my.clevelandclinic.org/health/diseases/10857-endometriosis).
* History of [gestational diabetes](https://my.clevelandclinic.org/health/diseases/9012-gestational-diabetes), eclampsia or [preeclampsia](https://my.clevelandclinic.org/health/diseases/17952-preeclampsia).
* Use of [hormonal birth control](https://my.clevelandclinic.org/health/drugs/3977-birth-control-the-pill).

## DIAGNOSIS AND TESTS

### How is coronary artery disease diagnosed?

Healthcare providers diagnose coronary artery disease through a physical exam and testing.

During your physical exam, your provider will:

* Measure your [blood pressure](https://my.clevelandclinic.org/health/diseases/17649-blood-pressure).
* Listen to your heart with a stethoscope.
* Ask what symptoms you’re experiencing and how long you’ve had them.
* Ask you about your medical history.
* Ask you about your lifestyle.
* Ask you about your family history. They’ll want to know about heart disease among your biological parents and siblings.

All of this information will help your provider determine your risk for heart disease.

#### Tests that help diagnose coronary artery disease

Your provider may also recommend one or more tests to assess your heart function and diagnose CAD. These include:

* [**Blood tests**](https://my.clevelandclinic.org/health/diagnostics/22207-cardiac-blood-tests): Check for substances that harm your arteries or increase your risk of CAD.
* [**Cardiac catheterization**](https://my.clevelandclinic.org/health/diagnostics/16832-cardiac-catheterization): Inserts tubes into your coronary arteries to evaluate or confirm CAD. This test is the gold standard for diagnosing CAD.
* [**Computed tomography (CT) coronary angiogram**](https://my.clevelandclinic.org/health/diagnostics/16899-coronary-computed-tomography-angiogram): Uses CT and contrast dye to view 3D pictures of your heart as it moves. Detects blockages in your coronary arteries.
* [**Coronary calcium scan**](https://my.clevelandclinic.org/health/diagnostics/16824-calcium-score-screening-heart-scan): Measures the amount of calcium in the walls of your coronary arteries (a sign of atherosclerosis). This doesn’t determine if you have significant blockages, but it does help determine your risk for CAD.
* [**Echocardiogram (echo)**](https://my.clevelandclinic.org/health/diagnostics/16947-echocardiogram): Uses sound waves to evaluate your heart’s structure and function.
* [**Electrocardiogram (EKG/ECG)**](https://my.clevelandclinic.org/health/diagnostics/16953-electrocardiogram-ekg): Records your heart’s electrical activity. Can detect old or current heart attacks, ischemia and heart rhythm issues.
* [**Exercise stress test**](https://my.clevelandclinic.org/health/diagnostics/16984-exercise-stress-test): Checks how your heart responds when it’s working very hard. Can detect angina and blockages in your coronary arteries.

## MANAGEMENT AND TREATMENT

### What is the treatment for coronary artery disease?

Treatment for CAD often includes lifestyle changes, risk factor management and medications. Some people may also benefit from a procedure or surgery.

Your healthcare provider will talk with you about the best treatment plan for you. It’s important to follow your treatment plan so you can lower your risk of serious complications from CAD.

#### Lifestyle changes

Lifestyle changes play a big role in managing CAD. Such changes include:

* Don’t smoke, vape, or use any tobacco products.
* Eat a [heart-healthy](https://my.clevelandclinic.org/health/articles/17079-heart-healthy-diet) diet that’s [low in sodium](https://health.clevelandclinic.org/heart-failure-diet-low-sodium/), saturated fat, trans fat and sugar. The [Mediterranean diet](https://my.clevelandclinic.org/health/articles/16037-mediterranean-diet) has been proven to lower your risk of a heart attack or stroke.
* [Exercise](https://my.clevelandclinic.org/health/articles/16981-exercise-for-your-heart-health): Aim for 30 minutes of walking five days a week, or find activities you enjoy.
* Limit [alcohol](https://my.clevelandclinic.org/health/articles/16728-alcohol--your-heart-health).

Be sure to talk with your provider before starting any new exercise program. Your provider can also offer guidance on lifestyle changes tailored to your needs. Your provider may recommend meeting with a dietitian to discuss healthy eating plans and smoking cessation options.

#### Risk factor management

Managing your risk factors for CAD can help slow down the progression of your disease. Work with your provider to manage the following conditions:

* Diabetes.
* High blood pressure.
* High cholesterol.
* High triglycerides (hypertriglyceridemia).
* Overweight/obesity.

#### Medications

Medications can help you manage your risk factors plus treat symptoms of coronary artery disease. Your provider may prescribe one or more of the medications listed below.

* Medications to [lower your blood pressure](https://my.clevelandclinic.org/health/treatments/21811-antihypertensives).
* Medications to [lower your cholesterol](https://my.clevelandclinic.org/health/drugs/8744-cholesterol-lowering-drugs).
* Medications to manage stable angina. These include [nitroglycerin](https://my.clevelandclinic.org/health/drugs/20423-nitroglycerin-sublingual-tablets) and [ranolazine](https://my.clevelandclinic.org/health/drugs/19192-ranolazine-tablets-extended-release).
* Medications to reduce your risk of blood clots.

#### Procedures and surgeries

Some people need a procedure or surgery to manage coronary artery disease, including:

* [**Percutaneous coronary intervention (PCI)**](https://my.clevelandclinic.org/health/treatments/22066-percutaneous-coronary-intervention): Another name for this procedure is coronary angioplasty. It’s minimally invasive. Your provider uses a small balloon to reopen your blocked artery and help blood flow through it better. Your provider may also insert a [stent](https://my.clevelandclinic.org/health/treatments/22486-stent) to help your artery stay open.
* [**Coronary artery bypass grafting (CABG)**](https://my.clevelandclinic.org/health/treatments/16897-coronary-artery-bypass-surgery): This surgery creates a new path for your blood to flow around blockages. This “detour” restores blood flow to your heart. CABG helps people who have severe blockages in several coronary arteries.

Your provider will recommend which of these treatment options would be best in your unique case.

## PREVENTION

### How can I prevent coronary artery disease?

You can’t always prevent coronary artery disease. That’s because some risk factors are out of your control. But there’s a lot you can do to lower your risk. Many strategies to lower your risk also help manage your condition once you’re diagnosed.

You can lower your risk of coronary artery disease and help prevent it from getting worse by doing the following:

* **Commit to**[**quitting smoking and all tobacco use**](https://health.clevelandclinic.org/quitting-smoking/). Quitting an addictive substance isn’t easy, and it’s not just a matter of willpower. That’s why it’s important to connect with resources and support groups that can help. Ask your provider for recommendations in your community.
* **Eat a heart-healthy diet**. This means avoiding foods high in saturated fat, trans fat, sodium and sugar. It also means limiting refined carbohydrates (like white bread and pasta). Replace such foods with whole grains (like wheat bread and brown rice). It’s also important to learn how [nutrition affects your cholesterol levels](https://my.clevelandclinic.org/health/articles/16867-cholesterol--nutrition-tlc).
* **Get enough sleep**. Most adults need seven to nine hours of quality [sleep](https://my.clevelandclinic.org/health/articles/12148-sleep-basics) per night. But many people might find this goal difficult, if not impossible. Work schedules, parenting and other obligations may prevent you from getting enough rest. Talk with your provider about strategies for getting the quality sleep you need to support your heart health.
* **Keep a healthy weight**. Talk with your provider about what your ideal weight should be. Work with your provider to set manageable goals until you reach your ideal weight. Avoid short-term diets that are very restrictive. Instead, adopt lifestyle changes that are reasonable for you to keep up for a long time to come.
* **Learn your risk for heart disease**. Visit your provider for a risk screening starting at age 20 (or sooner if your provider recommends it). Your provider will take some basic measurements, like your blood pressure and [BMI](https://my.clevelandclinic.org/health/articles/9464-body-mass-index-bmi). They may also use a [risk calculator](https://my.clevelandclinic.org/health/diagnostics/17085-heart-risk-factor-calculators) to predict your future risk of heart disease.
* **Limit alcohol use**. Drinking too much [alcohol](https://my.clevelandclinic.org/health/articles/16728-alcohol--your-heart-health) can harm your heart. Men and people AMAB should consume no more than two drinks per day. Women and people AFAB should limit their intake to one drink per day. But drinking less is even better.
* **Move around more**. Exercise is planned and intentional. It’s important to try to exercise for 150 minutes per week (for example, 30-minute walks on five days of the week). But you can also [build in extra movement](https://health.clevelandclinic.org/easy-ways-can-get-10000-steps-per-day/). Park farther away from the door. Put your laundry away in small batches so you get in more steps. Walk a lap around your house each time you go to the bathroom. Or even just [walk in place](https://health.clevelandclinic.org/is-walking-in-place-exercise/). The more you move, the better for your heart. Of course, check with your provider about what level of activity is safe for you.
* **Keep up with recommended medications.**Medications are essential in reducing your risk for CAD and preventing heart attacks if you’ve already been diagnosed with CAD. Many of these medications are prescribed lifelong. It’s important to understand what they do and how they prevent events and even prolong your life.

## OUTLOOK / PROGNOSIS

### What can I expect if I have coronary artery disease?

Your provider is the best person to ask about your prognosis. Outcomes vary based on the person. Your provider will look at the big picture, including your age, medical conditions, risk factors and symptoms. Lifestyle changes and other treatments can improve your chances of a good prognosis.

#### Can coronary artery disease be cured?

Coronary artery disease can’t be cured. But you can manage your condition and prevent it from getting worse. Work with your healthcare provider and follow your treatment plan. Doing so will give you the strongest possible chance of living a long and healthy life.

## LIVING WITH

### How do I take care of myself if I have coronary artery disease?

The most important thing you can do is keep up with your treatment plan. This may include lifestyle changes and medications. It may also involve a procedure or surgery and the necessary recovery afterward.

Along with treatment, your provider may recommend [cardiac rehab](https://my.clevelandclinic.org/health/treatments/22069-cardiac-rehab). A cardiac rehab program is especially helpful for people recovering from a heart attack or living with heart failure. Cardiac rehab can help you with exercise, dietary changes and stress management.

#### Coronary artery disease and mental health

A CAD diagnosis may cause you to think about your heart and arteries more than ever before. This can be exhausting and overwhelming. You may worry a lot about your symptoms or what might happen to you. It’s not surprising that many people with coronary artery disease experience depression and anxiety. You’re living with a condition that can be life-threatening. It’s normal to worry.

But the worry shouldn’t consume your daily life. You can still thrive and live an active, happy life while having heart disease. If your diagnosis is affecting your mental health, talk with a counselor. Find a support group where you can meet people who share your concerns. Don’t feel you need to keep it all inside or be strong for others. CAD is a life-changing diagnosis. It’s OK to devote time to processing it all and figuring out how to feel better both physically and emotionally.

### When should I see my healthcare provider?

Your provider will tell you how often you need to come in for testing or follow-ups. You may have appointments with specialists (like a [cardiologist](https://my.clevelandclinic.org/health/articles/21983-cardiologist)) in addition to your [primary care](https://my.clevelandclinic.org/health/articles/16507-the-importance-of-having-a-primary-care-doctor) visits.

Call your provider if you:

* Experience new or changing symptoms.
* Have side effects from your medication.
* Have questions or concerns about your condition or your treatment plan.

#### What questions should I ask my doctor?

If you haven’t been diagnosed with coronary artery disease, consider asking:

* What are my risk factors for coronary artery disease?
* What can I do to lower my risk?
* What lifestyle changes are most important for me?
* What medications would lower my risk, and what are the side effects? How long do I need to stay on these medications?

If you have coronary artery disease, some helpful questions include:

* What can I do to slow down disease progression?
* What’s the best treatment plan for me?
* What lifestyle changes should I make?
* What medications do I need, and what are the side effects?
* Will I need a procedure or surgery? What does the recovery look like?
* Are there support groups or resources you can recommend?

### When should I go to the emergency room?

Call 911 or your local emergency number if you have symptoms of a [heart attack](https://my.clevelandclinic.org/health/diseases/16818-heart-attack-myocardial-infarction) or [stroke](https://my.clevelandclinic.org/health/diseases/5601-stroke-understanding-stroke). These are life-threatening medical emergencies that require immediate care. It may be helpful to print out the symptoms and keep them where you can see them. Also, share the symptoms with your family and friends so they can call 911 for you if needed.

**A note from Cleveland Clinic**

Learning you have coronary artery disease can cause a mix of emotions. You may feel confused about how this could happen. You may feel sad or wish you’d done some things differently to avoid this diagnosis. But this is a time to look forward, not backward. Let go of any guilt or blame you feel. Instead, commit to building a plan to help your heart, beginning today.

Work with your provider to adopt lifestyle changes that feel manageable to you. Learn about treatment options, including medications, and how they support your heart health. Tell your family and friends about your goals and how they can help you. This is your journey, but you don’t have to do it alone.