



Home → Health Topics → Atherosclerosis

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Atherosclerosis

Also called: Arteriosclerosis

What is atherosclerosis?

Atherosclerosis is a condition in which plaque builds up inside your arteries. Plaque is a sticky substance made up of cholesterol [<https://medlineplus.gov/cholesterol.html>], fat, blood cells, calcium, and other substances found in the blood. Over time, plaque hardens and causes your arteries to narrow. That limits the flow of oxygen-rich blood to your body.

Some people may confuse atherosclerosis and arteriosclerosis, but they are not the same thing:

- **Arteriosclerosis** is hardening of the arteries, which means that the arteries thicken and become less flexible. It can have several different causes.
- **Atherosclerosis**, which develops from plaque buildup, is a common type of arteriosclerosis.

Atherosclerosis can affect most of the arteries in the body. It has different names, based on which arteries are affected:

- Coronary artery disease [<https://medlineplus.gov/coronaryarterydisease.html>] (CAD) is plaque buildup in the arteries of your heart.
- Peripheral artery disease [<https://medlineplus.gov/peripheralarterialdisease.html>] (PAD) is plaque buildup in the arteries that carry blood away from the heart to other parts of the body. It most often affects the arteries of your legs, but it can also affect the arteries of your arms or pelvis.
- Carotid artery disease [<https://medlineplus.gov/carotidarterydisease.html>] is plaque buildup in the neck arteries. It reduces blood flow to the brain.
- **Renal artery stenosis** is plaque buildup in the arteries that supply blood to your kidneys.
- **Vertebral artery disease** is plaque buildup in the arteries that supply blood to the back of your brain.
- **Mesenteric artery ischemia** is plaque buildup in the arteries that supply your intestines with blood.

What causes atherosclerosis?

Plaque often starts to build up during childhood and gets worse with age. The exact cause is unknown, but researchers believe that this buildup happens when there is damage to the arteries. This damage may be caused by unhealthy lifestyle habits, medical conditions, and your genes.

Who is more likely to develop atherosclerosis?

You may be more likely to develop atherosclerosis if you:

- Have certain medical conditions, including:
 - High blood pressure [<https://medlineplus.gov/highbloodpressure.html>]
 - High blood cholesterol
 - Diabetes [<https://medlineplus.gov/diabetes.html>]
 - Metabolic syndrome [<https://medlineplus.gov/metabolicsyndrome.html>]
 - Inflammatory diseases such as rheumatoid arthritis [<https://medlineplus.gov/rheumatoidarthritis.html>] and psoriasis [<https://medlineplus.gov/psoriasis.html>]
- Have a family history of high blood cholesterol

- Eat a lot of foods high in saturated fats [<https://medlineplus.gov/dietaryfats.html>]
- Smoke [<https://medlineplus.gov/smoking.html>] or chew [<https://medlineplus.gov/smokelesstobacco.html>] tobacco
- Are older - the risk increases after age 45 men and age 55 in women

What are the symptoms of atherosclerosis?

In the early stages, atherosclerosis often does not cause any symptoms. You may first notice some symptoms at times when your body needs more oxygen. For example, this could be when you are having physical or emotional stress.

Your symptoms will depend on which arteries are affected and how much blood flow is blocked:

- With **coronary artery disease**, the symptoms may include **angina** [<https://medlineplus.gov/angina.html>] (a type of chest pain), palpitations (racing or pounding heart), and **shortness of breath** [<https://medlineplus.gov/breathingproblems.html>].
- With **carotid artery disease**, you may have a bruit. This is a whooshing sound that your health care provider hears when using a stethoscope. You could also have a **transient ischemic attack** [<https://medlineplus.gov/transientischemicattack.html>] (TIA), sometimes called a mini-stroke.
- With **peripheral artery disease**, you may have pain, aching, heaviness, or cramping in the legs when walking or climbing stairs.
- With **vertebral artery disease**, you may have problems with thinking and memory, weakness or numbness on one side of the body or face, and vision trouble. You could also have a transient ischemic attack.
- With **mesenteric artery ischemia**, the symptoms can include severe pain after meals, weight loss, and **diarrhea** [<https://medlineplus.gov/diarrhea.html>].

For men, erectile dysfunction [<https://medlineplus.gov/erectiledysfunction.html>] (ED) is an early warning sign that you may be at higher risk for atherosclerosis and its complications. If you have ED, talk with your provider about your risk of plaque buildup.

What other problems can atherosclerosis cause?

Atherosclerosis can cause other health problems, or complications. For example, if a plaque bursts, a **blood clot** [<https://medlineplus.gov/bloodclots.html>] may form. The clot could block the artery completely or travel to another part of the body. Other possible complications can vary, depending on which arteries are affected. For example, blockages in different parts of the body can lead to complications such as a **heart attack** [<https://medlineplus.gov/heartattack.html>], **stroke** [<https://medlineplus.gov/ischemicstroke.html>], **vascular dementia** [<https://medlineplus.gov/dementia.html>], or **limb loss** [<https://medlineplus.gov/limbloss.html>].

How is atherosclerosis diagnosed?

To find out if you have atherosclerosis, your provider:

- Will ask about your medical and family health history
- Will ask about your lifestyle and risk factors for plaque buildup in the arteries
- Will do a physical exam, which will include listening to your heart and the blood flow in your arteries
- Will likely order tests, such as blood tests and **heart health tests** [<https://medlineplus.gov/hearthealthtests.html>]

What are the treatments for atherosclerosis?

If you have atherosclerosis, your provider will work with you to create a treatment plan that works for you. Your plan will depend on which arteries are affected, how much the blood flow is blocked, and what other medical conditions you have. Possible treatments may include:

- **Heart-healthy lifestyle changes** [<https://medlineplus.gov/howtopreventheartdisease.html>].
- **Medicines** to:
 - Manage your risk factors.
 - Treat atherosclerosis or its complications.
 - Treat any medical conditions you have that can worsen plaque buildup.

- **Procedures or surgeries** to treat diseases or complications that were caused by plaque buildup. The specific type of procedure or surgery will depend on which arteries are affected.
- Cardiac rehabilitation [<https://medlineplus.gov/cardiacrehabilitation.html>] , if you have had certain complications from atherosclerosis.

Can atherosclerosis be prevented?

There are steps you can take to try to prevent atherosclerosis:

- **Choose heart-healthy foods**, such fruits, vegetables, and whole grains. Limit foods that are high in saturated fats, salt [<https://medlineplus.gov/sodium.html>] , and added sugars.
- **Do regular physical activity** [<https://medlineplus.gov/howmuchexercisedoined.html>] . But before you start an exercise program, ask your provider what level of physical activity is right for you.
- **Aim for a healthy weight** [<https://medlineplus.gov/weightcontrol.html>] .
- **Limit how much alcohol** [<https://medlineplus.gov/alcohol.html>] **you drink**. Drinking less is better for health than drinking more. Men should limit their intake to 2 drinks or less in a day. Women should drink 1 drink or less per day.
- **Manage stress** [<https://medlineplus.gov/stress.html>] .
- If you smoke, quit smoking [<https://medlineplus.gov/quittingsmoking.html>] .
- **Avoid secondhand smoke** [<https://medlineplus.gov/secondhandsmoke.html>] .
- **Get enough good-quality sleep** [<https://medlineplus.gov/healthysleep.html>] .

NIH: National Heart, Lung, and Blood Institute

Start Here

- What Is Atherosclerosis? [<https://www.nhlbi.nih.gov/health/atherosclerosis>]  (National Heart, Lung, and Blood Institute)
Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/atosclerosis>]

Diagnosis and Tests

- Heart Health Tests: MedlinePlus Health Topic [<https://medlineplus.gov/hearthealthtests.html>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/hearthealthtests.html>]
- Lipoprotein (a) Blood Test [<https://medlineplus.gov/lab-tests/lipoprotein-a-blood-test/>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/pruebas-de-laboratorio/analisis-de-sangre-de-lipoproteina-a/>]

Treatments and Therapies

- Angioplasty: MedlinePlus Health Topic [<https://medlineplus.gov/angioplasty.html>]  (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/angioplasty.html>]
- Chelation for Coronary Heart Disease: What You Need To Know [<https://www.nccih.nih.gov/health/chelation-for-coronary-heart-disease-what-you-need-to-know>]  (National Center for Complementary and Integrative Health)

Living With

- Heart-Healthy Diet: Eight Steps to Prevent Heart Disease [<https://www.mayoclinic.org/diseases-conditions/heart-disease/in-depth/heart-healthy-diet/ART-20047702?p=1>] (Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/heart-disease/in-depth/heart-healthy-diet/art-20047702?p=1>]

Related Issues

- Atherosclerosis and Stroke [<https://www.stroke.org/en/about-stroke/stroke-risk-factors/atherosclerosis-and-stroke>] (American Stroke Association)
Also in Spanish [<https://www.stroke.org/es/about-stroke/stroke-risk-factors/atherosclerosis-and-stroke>]

Specifics

- Cerebral Arteriosclerosis [<https://www.ninds.nih.gov/health-information/disorders/cerebral-arteriosclerosis>]  (National Institute of Neurological Disorders and Stroke)

Genetics

- Hutchinson-Gilford progeria syndrome: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/hutchinson-gilford-progeria-syndrome>]  (National Library of Medicine)
- Tangier disease: MedlinePlus Genetics [<https://medlineplus.gov/genetics/condition/tangier-disease>]  (National Library of Medicine)

Videos and Tutorials

- Atherosclerosis [<https://medlineplus.gov/ency/anatomyvideos/000006.htm>]  (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/anatomyvideos/000006.htm>]

Clinical Trials

- ClinicalTrials.gov: Arteriosclerosis [<https://clinicaltrials.gov/search?cond=%22Arteriosclerosis%22&aggFilters=status:not%20rec>]  (National Institutes of Health)
- ClinicalTrials.gov: Atherosclerosis [<https://clinicaltrials.gov/search?cond=%22Atherosclerosis%22&aggFilters=status:not%20rec>]  (National Institutes of Health)

Journal Articles

References and abstracts from MEDLINE/PubMed (National Library of Medicine)

- Article: Statin Therapy as Primary Prevention for Persons With HIV: A Synopsis... [<https://www.ncbi.nlm.nih.gov/pubmed/40418812>]
- Article: Safety and Lipid-Lowering Efficacy of Inclisiran Monotherapy in Patients Without ASCVD:... [<https://www.ncbi.nlm.nih.gov/pubmed/40392667>]
- Article: Enhancement of Statin Effects on Lipid Lowering and Reduction of Cardiovascular... [<https://www.ncbi.nlm.nih.gov/pubmed/40387782>]
- Atherosclerosis -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Atherosclerosis%22%5Bmajr%3Anoexp%5D+AND+humans%5Bmh%5D+AND+english%5Bla%5D+AND+%22last+1+Year%22+%5Bdat%5D+AND+%28patient+education+handout%5Bpt%5D+OR+guideline%5Bpt%5D+OR+clinical+trial%5Bpt%5D%29++NOT+%28letter%5Bpt%5D+OR+case+reports%5Bpt%5D+OR+editorial%5Bpt%5D+OR+comment%5Bpt%5D%29+AND+free+full+text%5Bsb%5D+>]

Find an Expert

- American Heart Association [<https://www.heart.org/en/>]
- National Heart, Lung, and Blood Institute [<https://www.nhlbi.nih.gov/>] 

Patient Handouts

- Angioplasty and stent placement - peripheral arteries [<https://medlineplus.gov/ency/article/007393.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/007393.htm>]
- Arteriogram [<https://medlineplus.gov/ency/article/003327.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003327.htm>]
- Atherosclerosis [<https://medlineplus.gov/ency/article/000171.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/000171.htm>]
- Carotid artery surgery - open [<https://medlineplus.gov/ency/article/002951.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/002951.htm>]
- Doppler ultrasound exam of an arm or leg [<https://medlineplus.gov/ency/article/003775.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003775.htm>]
- Extremity angiography [<https://medlineplus.gov/ency/article/003772.htm>] (Medical Encyclopedia)

Also in Spanish [<https://medlineplus.gov/spanish/ency/article/003772.htm>]

- Magnetic resonance angiography [<https://medlineplus.gov/ency/article/007269.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/007269.htm>]
- What Is Atherosclerosis? [<https://www.nhlbi.nih.gov/health/atherosclerosis>]  (National Heart, Lung, and Blood Institute)
Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/aterosclerosis>]



MEDICAL ENCYCLOPEDIA

[Angioplasty and stent placement - peripheral arteries](https://medlineplus.gov/ency/article/007393.htm) [<https://medlineplus.gov/ency/article/007393.htm>]

[Arterial insufficiency](https://medlineplus.gov/ency/article/000725.htm) [<https://medlineplus.gov/ency/article/000725.htm>]

[Arteriogram](https://medlineplus.gov/ency/article/003327.htm) [<https://medlineplus.gov/ency/article/003327.htm>]

[Atheroembolic renal disease](https://medlineplus.gov/ency/article/000480.htm) [<https://medlineplus.gov/ency/article/000480.htm>]

[Atherosclerosis](https://medlineplus.gov/ency/anatomyvideos/000006.htm) [<https://medlineplus.gov/ency/anatomyvideos/000006.htm>]

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[Doppler ultrasound exam of an arm or leg](https://medlineplus.gov/ency/article/003775.htm) [<https://medlineplus.gov/ency/article/003775.htm>]

[Extremity angiography](https://medlineplus.gov/ency/article/003772.htm) [<https://medlineplus.gov/ency/article/003772.htm>]

[Lipoprotein-a](https://medlineplus.gov/ency/article/007262.htm) [<https://medlineplus.gov/ency/article/007262.htm>]

[Magnetic resonance angiography](https://medlineplus.gov/ency/article/007269.htm) [<https://medlineplus.gov/ency/article/007269.htm>]

Related Health Topics

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The primary NIH organization for research on *Atherosclerosis* is the National Heart, Lung, and Blood Institute
[<http://www.nhlbi.nih.gov/>]

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