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Coronary Artery Bypass Surgery

Also called: Bypass surgery, CABG, Coronary artery bypass graft

What is coronary artery bypass surgery?

Coronary artery bypass surgery creates a new path for blood to flow to your heart. This surgery is sometimes called a coronary artery bypass graft (CABG) or heart bypass. It's the most common heart surgery in adults. You may need this surgery if you have a blocked or partially blocked artery in your heart.

This surgery is often used to treat coronary artery disease [<https://medlineplus.gov/coronaryarterydisease.html>] (CAD). Your coronary arteries supply blood to your heart. If you have coronary artery disease, a sticky material called plaque builds up in your coronary arteries. This can cause them to harden and narrow. When this happens, some parts of your heart don't get enough blood.

Before recommending surgery, your health care provider may try other treatments. These could include [lifestyle changes](#) [<https://medlineplus.gov/howtopreventheartdisease.html>], medicines, or [angioplasty](#) [<https://medlineplus.gov/angioplasty.html>], a procedure to open your arteries. If these treatments don't help, you may need coronary artery bypass surgery.

Who might benefit from coronary artery bypass surgery?

Your provider may recommend surgery if you have obstructive coronary artery disease to help lower your risk of a heart attack [<https://medlineplus.gov/heartattack.html>]. They will consider your overall health before deciding if surgery is your best option.

You may benefit from surgery if you have:

- Coronary heart disease with angina [<https://medlineplus.gov/angina.html>] (chest pain)
- Diabetes [<https://medlineplus.gov/diabetes.html>]
- Multiple blocked coronary arteries
- Serious heart failure [<https://medlineplus.gov/heartfailure.html>]

You might need emergency coronary artery bypass surgery to treat a severe heart attack.

What happens during coronary artery bypass surgery?

During surgery, the surgeon takes healthy blood vessels from another part of your body. These blood vessels are attached to blood vessels above and below the blocked artery to let blood bypass (get around) the blockage. You might need more than one bypass if you have a few blocked arteries.

Methods to perform coronary artery bypass surgery include:

- **Traditional CABG.** The chest is cut open to reach the heart. A machine pumps blood through your body during the surgery. This is the most common type of CABG surgery.
- **Off-pump CABG.** The chest is cut open to reach the heart. A machine for pumping blood is not used.

- **Minimally invasive CABG methods.** Small cuts are made in the chest. A machine for pumping blood is not used.
- **Robotic-assisted surgery.** This is a type of minimally invasive surgery. The surgeon uses a computer to control tools on the arms of a robot. A machine for pumping blood may be used.

Are there any risks from coronary artery bypass surgery?

Like all surgery, CABG has risks even though the results are often excellent. The risks can include:

- Arrhythmia [<https://medlineplus.gov/arrhythmia.html>]
- Bleeding
- Heart attack
- Infection
- Kidney failure [<https://medlineplus.gov/kidneyfailure.html>]
- Stroke [<https://medlineplus.gov/stroke.html>]

After coronary artery bypass surgery, many people remain symptom-free for years. You may need surgery again if blockages form in the grafted arteries or veins. Or if blockages happen in arteries that weren't blocked before. Lifestyle changes and medicines may help stop your arteries from becoming clogged again.

NIH: National Heart, Lung, and Blood Institute

Start Here

- Coronary Artery Bypass [<https://www.texasheart.org/heart-health/heart-information-center/topics/coronary-artery-bypass/>] (Texas Heart Institute)
Also in Spanish [<https://www.texasheart.org/heart-health/heart-information-center/topics/bypass-coronario/>]
- What Is Coronary Artery Bypass Grafting? [<https://www.nhlbi.nih.gov/health/coronary-artery-bypass-grafting>]
 (National Heart, Lung, and Blood Institute)
Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/cirugia-de-revascularizacion-miocardica>]
- What Is Coronary Bypass Surgery? [<https://www.heart.org/-/media/files/health-topics/answers-by-heart/what-is-coronary-bypass-surgery.pdf>] (American Heart Association) - **PDF**

Diagnosis and Tests

- Coronary CTA (Computed Tomography Angiography) [<https://www.radiologyinfo.org/en/info/angiocorct>] (American College of Radiology; Radiological Society of North America)
Also in Spanish [<https://www.radiologyinfo.org/es/info/angiocorct>]

Living With

- Cardiac Rehabilitation: MedlinePlus Health Topic [<https://medlineplus.gov/cardiacrehabilitation.html>]
 (National Library of Medicine)
Also in Spanish [<https://medlineplus.gov/spanish/cardiacrehabilitation.html>]
- What to Expect After Heart Surgery [<https://www.sts.org/sites/default/files/AHSBrochureFinal.pdf>] (Society of Thoracic Surgeons) - **PDF**

Related Issues

- Coronary Artery Disease: Angioplasty or Bypass Surgery? [<https://www.mayoclinic.org/diseases-conditions/coronary-artery-disease/expert-answers/coronary-artery-disease/FAQ-20058302?p=1>] (Mayo Foundation for Medical Education and Research)
Also in Spanish [<https://www.mayoclinic.org/es/diseases-conditions/coronary-artery-disease/expert-answers/coronary-artery-disease/faq-20058302?p=1>]

Specifics

- Limited-Access Heart Surgery [<https://www.texasheart.org/heart-health/heart-information-center/topics/limited-access-heart-surgery/>] (Texas Heart Institute)

Images

- Heart bypass surgery - series [https://medlineplus.gov/ency/presentations/100190_1.htm] (Medical Encyclopedia)
Also in Spanish [https://medlineplus.gov/spanish/ency/esp_presentations/100190_1.htm]

Videos and Tutorials

- Heart bypass surgery [<https://medlineplus.gov/ency/anatomyvideos/000065.htm>]  (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/anatomyvideos/000065.htm>]

Clinical Trials

- ClinicalTrials.gov: Coronary Artery Bypass [<https://clinicaltrials.gov/search?intr=coronary+artery+bypass&aggFilters=status:not%20rec>]  (National Institutes of Health)

Journal Articles

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

- Article: Effectiveness of deep breathing exercises on anxiety, depression and sleep quality... [<https://www.ncbi.nlm.nih.gov/pubmed/40702242>]
- Article: A Comparative Study of the Efficacy and Safety Profile of Topical... [<https://www.ncbi.nlm.nih.gov/pubmed/40629784>]
- Article: Melatonin administered postoperatively lowers oxidative stress and inflammation and significantly recovers... [<https://www.ncbi.nlm.nih.gov/pubmed/40619439>]
- Coronary Artery Bypass Surgery -- see more articles [<https://pubmed.ncbi.nlm.nih.gov/?term=%22Coronary+Artery+Bypass%22%5Bmajr%3Aexp%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+>]

Reference Desk

- Heart Anatomy [<https://www.texasheart.org/heart-health/heart-information-center/topics/heart-anatomy/>] (Texas Heart Institute)
Also in Spanish [<https://www.texasheart.org/heart-health/heart-information-center/topics/anatomia-del-corazon/>]
- How the Heart Works [<https://www.nhlbi.nih.gov/health/heart>]  (National Heart, Lung, and Blood Institute)
Also in Spanish [<https://www.nhlbi.nih.gov/es/salud/corazon>]

Find an Expert

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

Patient Handouts

- Heart bypass surgery [<https://medlineplus.gov/ency/article/002946.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/002946.htm>]
- Heart bypass surgery - discharge [<https://medlineplus.gov/ency/patientinstructions/000102.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000102.htm>]
- Heart bypass surgery - minimally invasive [<https://medlineplus.gov/ency/article/007012.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/article/007012.htm>]
- Heart bypass surgery - minimally invasive - discharge [<https://medlineplus.gov/ency/patientinstructions/000103.htm>] (Medical Encyclopedia)
Also in Spanish [<https://medlineplus.gov/spanish/ency/patientinstructions/000103.htm>]



MEDICAL ENCYCLOPEDIA

Heart bypass surgery [<https://medlineplus.gov/ency/anatomyvideos/000065.htm>]

Heart bypass surgery [<https://medlineplus.gov/ency/article/002946.htm>]

Heart bypass surgery - discharge [<https://medlineplus.gov/ency/patientinstructions/000102.htm>]

Heart bypass surgery - minimally invasive [<https://medlineplus.gov/ency/article/007012.htm>]

Heart bypass surgery - minimally invasive - discharge [<https://medlineplus.gov/ency/patientinstructions/000103.htm>]

Heart bypass surgery - series [https://medlineplus.gov/ency/presentations/100190_1.htm]

Related Health Topics

Angioplasty [<https://medlineplus.gov/angioplasty.html>]

Cardiac Rehabilitation [<https://medlineplus.gov/cardiacrehabilitation.html>]

Heart Surgery [<https://medlineplus.gov/heartsurgery.html>]

National Institutes of Health

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

Other Languages

Find health information in languages other than English

[<https://medlineplus.gov/languages/coronaryarterybypasssurgery.html>] on *Coronary Artery Bypass Surgery*

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