

**HAVE
AFIB?**



**If You Are Having Heart Surgery,
Surgical Ablation at the Same
Time Might Be Right for You**

ACT

against Afib

Do You Have Afib?

Having Heart Surgery?

Your doctor believes the best treatment for your heart condition is surgery. This brochure may help to answer some of your questions. It may also suggest topics you want to discuss with the surgeon before your surgery — such as whether the surgeon can treat your atrial fibrillation (Afib) at the same time!

Types of Open-Heart Surgery:

- **Coronary Artery Bypass Graft (CABG)**
- **Mitral Valve Replacement (MVR)**
- **Aortic Valve Replacement (AVR)**
- **Surgical Ablation (SA)**

If You Have Afib, You Have:

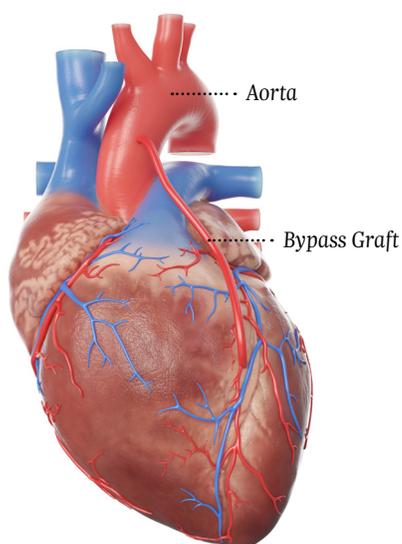
5x increase in stroke risk¹

5x increase in heart failure (HF) development²

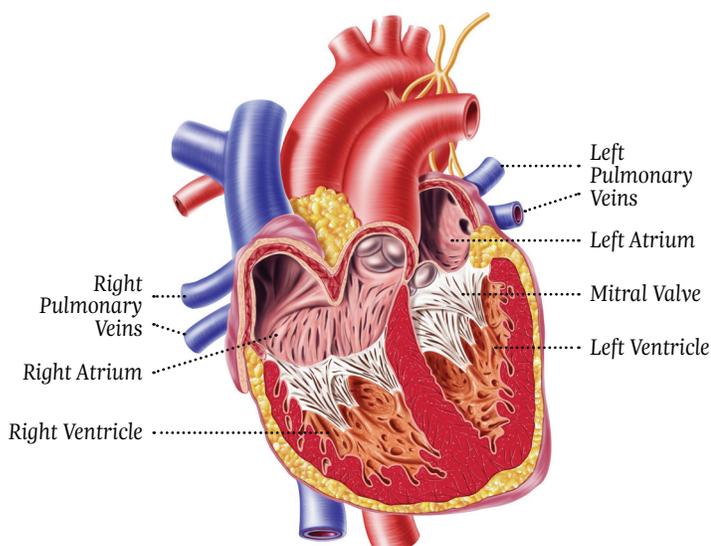
How Does Surgery Treat Coronary Artery Disease (CAD)?

Your upcoming heart surgery will treat your coronary artery disease (CAD). CAD occurs when the arteries that send blood to your heart muscle become blocked. This happens as plaque builds up inside the arteries. Plaque is made up of fatty substances, such as cholesterol, in your blood. Because of the plaque, less blood can flow through your arteries, and the heart muscle cannot get all of the blood and oxygen it needs. The major symptoms of CAD are usually chest pain (angina) or shortness of breath.³ For some people, the first signs of CAD are chest pain or a heart attack.

During CABG the surgeon removes a healthy section of artery or vein from another part of the body (often the leg or the chest wall). The healthy artery or vein is then connected to the heart artery. In this way, the blood “bypasses” the blocked segment. This allows enough blood to flow to your heart muscle. If several arteries are blocked, a person may have a bypass graft for each blocked artery.



View of Outside of Heart



View of Inside of Heart

What is Afib?

Atrial fibrillation is an abnormal and irregular heartbeat, or heart rhythm. It occurs in the heart's upper chambers, the atria. Atrial fibrillation is caused by erratic electrical signals in the heart. You might also hear atrial fibrillation called AF, or Afib.

Symptoms of Afib:⁴

- Shortness of breath
- Fatigue
- Lowered blood pressure
- Feeling lightheaded
- Chest pain
- Weakness
- Heart palpitations (a feeling that the heart is racing)

Is Afib **Always** Detected **Before** Heart Surgery?

No. Not always. Before you have heart surgery, it's very important to mention to your surgeon if you have Afib, or symptoms of Afib.

Ask your surgeon about ablation to treat your Afib.

Are There **Health Risks** for Someone with Afib?

Yes. Afib can weaken the heart. Afib can also cause problems with the way the heart contracts to send blood to the entire body.

Medical issues people with Afib might face:

- **Stroke**¹
- **Heart Failure**²
- **Chronic Fatigue**⁵
- **Shortness of Breath**⁵

It's Also Important to Tell the Surgeon If You Have:

- Had heart palpitations
- Taken medication for your heart
- Taken blood thinners
- An irregular heart rhythm

Afib Can Negatively Affect How a Person Feels in Other Ways, Too.



Medications: People with Afib often need to take medications to slow the heart rate and/or control the heart rhythm. Blood thinners are often used to prevent clots, and thus prevent stroke. These medications may have the following side effects:^{6,7}

- Excessive bleeding
- Dizziness
- Blurred vision
- Confusion
- Bleeding in the stomach or intestines
- Weakness
- Bleeding in the brain
- Seizures
- Fatigue
- Swelling in the abdomen, ankles, or feet
- Reddish-colored skin
- Nausea or vomiting
- Diarrhea
- Blood in stool or urine
- Dry mouth, eyes, and skin



Quality of Life: A person's quality of life can decline due to:⁸

- Symptoms of Afib
- Side effects of medication
- Stress over medications
- Anxiety
- Depression
- Frequent clinic and doctor visits⁹



Decreased Activity: The symptoms of Afib can cause a person to become less physically active. This may also lead to fewer social activities with friends and family.⁸

What Are the Treatments for Afib?

Lifestyle Changes: Eating right and exercising more may not be able to cure Afib. But, they can prevent or help limit health conditions — such as obesity or diabetes — that may cause Afib.¹⁰ They can also help you feel better overall.

Medications: If you have Afib, many medications are not usually able to stop the Afib. They often treat symptoms like fast heart rate or blood thinners to prevent clots that can cause strokes. Only a few medications may be used to try to halt the Afib.

Electrical Cardioversion: This same-day procedure restores a normal heart rhythm. Electrodes (small sticky patches) are attached to the outside of the chest. Wires connect the electrodes to a machine that delivers energy. The procedure is often done by a cardiologist called an electrophysiologist.



Medications do not necessarily help people with Afib live longer.¹¹

Ablation Treatment Options for Afib

Ablation: An ablation delivers small, painless amounts of energy directly onto the heart tissue to cause lesions. The purpose of the lesions is to interrupt the abnormal electrical signals and stop the Afib. There are different types of ablation described here.

Catheter Ablation: Catheter ablation treats Afib from the inside of the heart. Doctors place a catheter, a long thin tube, in a vein in the upper thigh or groin area and up into the heart. The person is awake during the procedure but receives medication to feel drowsy.

The procedure often takes 2 to 4 hours. The patient might go home the same day or might need to stay overnight in the hospital.¹² Some people may have a repeat procedure if the Afib comes back.

Surgical Ablation: Surgical ablation, which treats the outside tissues of the heart, is performed through an incision in the chest. If you are having CABG or valve surgery, surgical ablation can be done at the same time.

Some aspects of surgical ablation are similar to catheter ablation:

- Energy is delivered to the heart to interrupt the abnormal electrical signals.
- The resulting lesions are intended stop the Afib.

The hospital stay after surgery and ablation is usually less than a week.^{13,14}

The surgeon can exclude the left atrial appendage, the most common source for clots that can cause strokes, as part of the surgical ablation.

Why is Surgical Ablation of Your Afib So Important?

If you have Afib and are going to have surgery, your two heart issues can be corrected during one surgery.

1. Medical societies recommend it.²⁰⁻²⁴
2. It can help stop the Afib and reduce burden on the heart, yet only about 20–30% of people who have Afib before their surgery get surgical ablation.^{16,25,26}
3. Surgical ablation has the highest chance to restore a normal heart rhythm. **Research has shown it can help people with Afib to live longer.**¹⁵⁻¹⁷

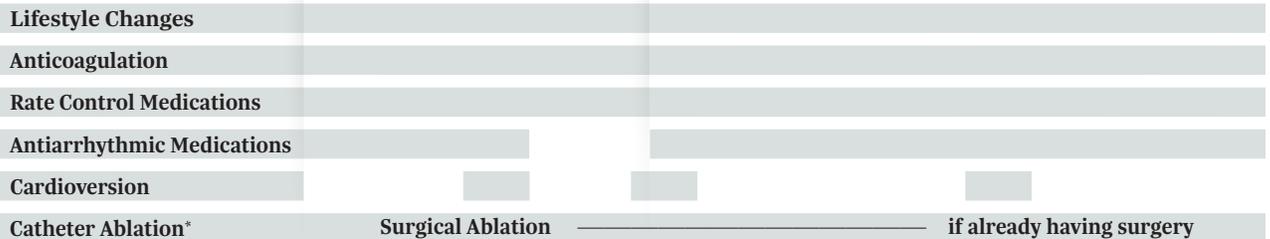
Stages of Afib and Common Treatments

Types of Afib



Diagnosis

Possible Treatments for Afib



Source: Developed with the special contribution of the European Heart Rhythm Association (EHRA). Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS), Authors/Task Force Members, Camm, A.J., et al. (2010). Guidelines for the management of atrial fibrillation: the Task Force for the Management of Atrial Fibrillation of the European Society of Cardiology (ESC). European Heart Journal, 31(19):2369-429.

*Some catheters may have received an early persistent indication, defined as Afib less than 6 months, for use during catheter ablation.

Is Ablation Right for Me?

**Have Afib? Having Heart Surgery?
Ask Your Surgeon if Surgical Ablation is Right For You.**

Ablation for Afib May Help:*

- You live longer and feel better
- You stay out of the hospital (readmissions lower)
- Your heart pumps more strongly (EF improves)
- You walk faster and feel better
- You get off coumadin and bleed less

*Source: Marrouche, N.F., Brachmann, J., & CASTLE-AF Steering Committee. (2009). Catheter Ablation Versus Standard Conventional Treatment in Patients With Left Ventricular Dysfunction and Atrial Fibrillation (CASTLE-AF) – Study Design. Pacing Clin Electrophysiol, 32(8):987-94, DOI: 10.1111/j.1540-8159.2009.02428.x.

If you have persistent Afib, or long-standing persistent Afib, surgical ablation during heart surgery is more effective at making sure the Afib doesn't recur.¹⁸⁻²²

Learn More at ACTagainstAfib.com.

EF: ejection fraction



Before your heart surgery, ask your surgeon if ablation to treat your Afib at the same time is right for you.

To find out more, visit ACTAgainstAfib.com.

References:

- ¹ Benjamin, E.J., et al. (2019). Heart Disease and Stroke Statistics — 2019 Update: A Report From the American Heart Association. *Circulation*, 139:e56-e528, DOI: 10.1161/CIR.0000000000000659.
- ² Odotayo, A. et al. (2016). Atrial fibrillation and risks of cardiovascular disease, renal disease, and death: systematic review and meta-analysis. *BMJ*; 354:i4482.
- ³ Mayo Clinic. (2020, June 5). Coronary artery disease. Accessed June 2020. Retrieved from: <https://www.mayoclinic.org/diseases-conditions/coronary-artery-disease/symptoms-causes/syc-20350613>.
- ⁴ Mayo Clinic. (2019, June 20). Atrial fibrillation. Accessed June 2020. Retrieved from <https://www.mayoclinic.org/diseases-conditions/atrial-fibrillation/symptoms-causes/syc-20350624>.
- ⁵ American Heart Association. (2016, July 31). Why Atrial Fibrillation (AF or Afib) Matters. Accessed June 2020. Retrieved from <https://www.heart.org/en/health-topics/atrial-fibrillation/why-atrial-fibrillation-af-or-afib-matters>.
- ⁶ WebMD. (2020, April 17). Medications That Treat Atrial Fibrillation. Accessed June 2020. Retrieved from <https://www.webmd.com/heart-disease/atrial-fibrillation/what-medicines-treat-afib#1>.
- ⁷ Davis, C.P. (2019, September 3). Atrial Fibrillation (AFib) Treatment Drugs. *MedicineNet*. Accessed June 2020. Retrieved from https://www.medicinenet.com/atrial_fibrillation_afib_treatment_drugs/article.htm.
- ⁸ Aliot, E., Botto, G.L., Crijns, H.J., & Kirchhof, P. (2014). Quality of Life in Patients With Atrial Fibrillation: How to Assess It and How to Improve It. *Europace*, 16(6):787-96.
- ⁹ Avalere Health. Health Services Utilization and Medical Costs Among Medicare Atrial Fibrillation Patients. (2010, September). Accessed June 2020. Retrieved from https://avalere.com/research/docs/Avalere-AFIB_Report-09212010.pdf.
- ¹⁰ Healthline. (2019, April 30). Lifestyle Changes to Manage Afib Better. Accessed June 2020. Retrieved from <https://www.healthline.com/health/atrial-fibrillation/lifestyle-changes>.
- ¹¹ The Atrial Fibrillation Follow-Up Investigation of Rhythm Management (AFFIRM) Investigators. (2002). A Comparison of Rate Control and Rhythm Control in Patients with Atrial Fibrillation. *N Engl J Med*, 347:1825-33, DOI: 10.1056/NEJMoa021328.
- ¹² American Heart Association. (2016, September 30). Ablation for Arrhythmias. Accessed June 2020. Retrieved from: <https://www.heart.org/en/health-topics/arrhythmia/prevention-treatment-of-arrhythmia/ablation-for-arrhythmias>.
- ¹³ Peterson, E.D., et al. (2002). Hospital variability in length of stay after coronary artery bypass surgery: results from the Society of Thoracic Surgeon's National Cardiac Database. *Ann Thorac Surg*, 74(2):464-73, DOI: [https://doi.org/10.1016/S0003-4975\(02\)03694-9](https://doi.org/10.1016/S0003-4975(02)03694-9).
- ¹⁴ Mayo Clinic. (2018, October 24). Coronary bypass surgery. Accessed June 2020. Retrieved from <https://www.mayoclinic.org/tests-procedures/coronary-bypass-surgery/about/pac-20384589>.
- ¹⁵ Rankin, J.S., Lerner, D.J., Braid-Forbes, M.J., McCrear, M.L., & Badhwar, V. (2019). Surgical ablation of atrial fibrillation concomitant to coronary-artery bypass grafting provides cost-effective mortality reduction. *J Thorac Cardiovasc Surg*.
- ¹⁶ Iribarne, A. et al. (2019). Surgical atrial fibrillation ablation improves long-term survival: a multicenter analysis. *Ann of Thorac Surg*, 107(1):135-42.
- ¹⁷ Musharbash, F.N. et al. (2018). Performance of the Cox-maze IV procedure is associated with improved long-term survival in patients with atrial fibrillation undergoing cardiac surgery. *J Thorac Cardiovasc Surg*, 155(1):159-70.
- ¹⁸ Weimar, T. et al. (2011). The Cox-maze IV procedure for lone atrial fibrillation: a single center experience in 100 consecutive patients. *Journal of Interventional Cardiac Electrophysiology*, 31(1):47-54, DOI: 10.1007/s10840-011-9547-3.
- ¹⁹ Schill, M.R., et al. (2017). Late results of the Cox-Maze IV procedure in patients undergoing coronary artery bypass grafting. *J Thorac Cardiovasc Surg*, 153(5):1087-94, DOI: 10.1016/j.jtcvs.2016.12.034.
- ²⁰ Badhwar, V., Rankin, J.S., Damiano, R.J. Jr, Gillinov, A.M., Bakaeen, F.G., Edgerton, J.R., Philpott, J.M., McCarthy, P.M., Bolling, S.F., Roberts, H.G., Thourani, V.H., Suri, R.M., Shemin, R.J., Firestone, S., Ad, N. (2017). The Society of Thoracic Surgeons 2017 Clinical Practice Guidelines for the Surgical Treatment of Atrial Fibrillation. *Ann Thorac Surg*, 103(1), 329-341, DOI: 10.1016/j.athoracsur.2016.10.076.
- ²¹ Calkins, H., et al. (2017). 2017 HRS/EHRA/ECAS/APHRS/SOLAECE Expert Consensus Statement on Catheter and Surgical Ablation of Atrial Fibrillation. *Heart Rhythm*, 14(10):e275-e444, DOI: 10.1016/j.hrthm.2017.05.012.
- ²² January, C.T., et al. (2014). 2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Heart Rhythm Society. *Journal of the American College of Cardiology*, 64(21):e1-e76, DOI: 10.1016/j.jacc.2014.03.022.
- ²³ Meier, B., et al. (2014). EHRA/EAPCI Expert Consensus Statement on Catheter-Based Left Atrial Appendage Occlusion. *Europace*, 16(10):1397-416, DOI: 10.1093/europace/euu174.
- ²⁴ Cox, J.L., et al. (1991). Successful Surgical Treatment of Atrial Fibrillation: Review and Clinical Update. *JAMA*, 266(14):1976-80, DOI:10.1001/jama.1991.03470140088029.
- ²⁵ Badhwar, V., et al. (2017). Surgical Ablation of Atrial Fibrillation in the United States: Trends and Propensity Matched Outcomes. *Ann Thorac Surg*, 104(2):493-500, DOI: 10.1016/j.athoracsur.2017.05.016.
- ²⁶ Braid-Forbes, M.J. (2016, August). NIS for volume and Medicare to look back over 3 years and obtained diagnosis. *Health Research*, 2014 CMS SAE.

Clinical results are not predictive and individual results may vary.

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