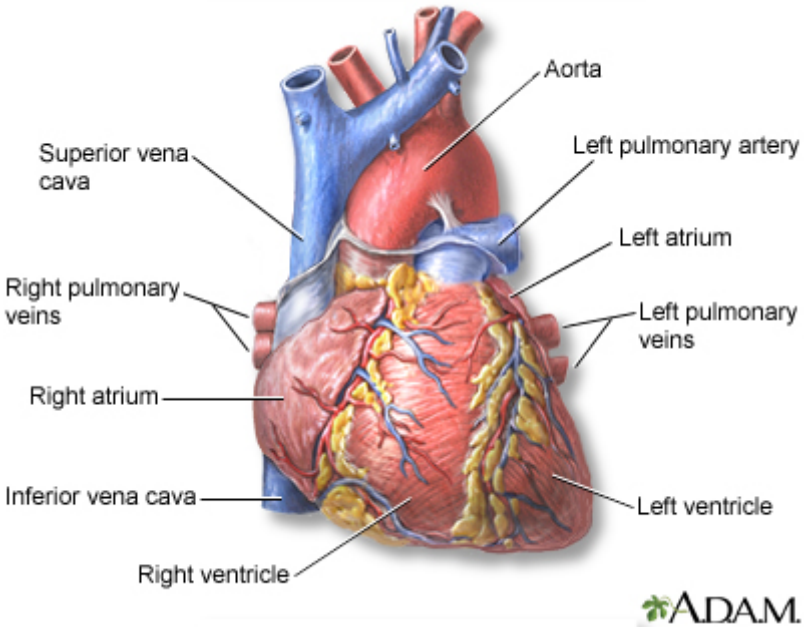
Intracardiac electrophysiology study (EPS)

Definition

Intracardiac electrophysiology study (EPS) is a test to look at how well the heart's electrical signals are working. It is used to check for abnormal heartbeats or heart rhythms.

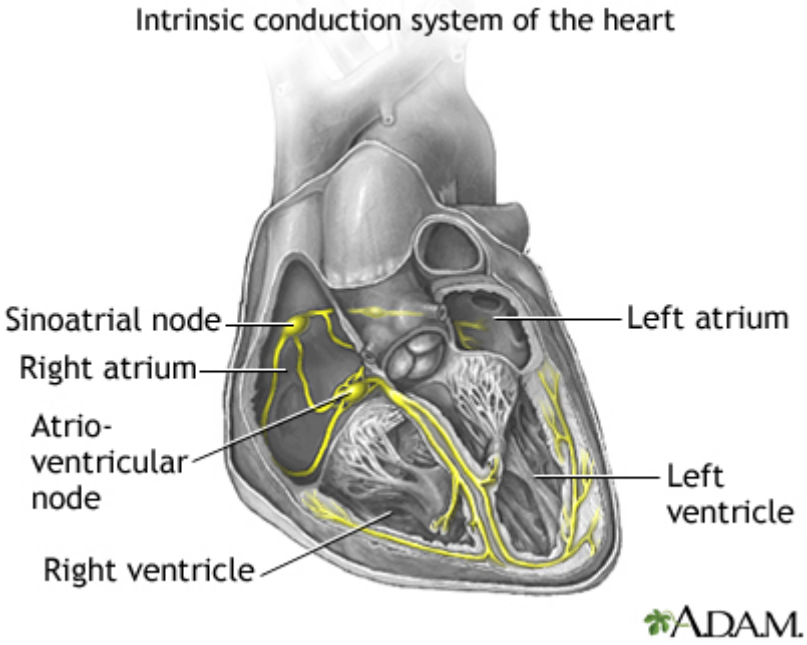


Alternative Names

Electrophysiology study - intracardiac; EPS - intracardiac; Abnormal heart rhythms - EPS; Bradycardia - EPS; Tachycardia - EPS; Fibrillation - EPS; Arrhythmia - EPS; Heart block - EPS

How the Test is Performed

Wire electrodes are placed in the heart to do this test. These electrodes measure electrical activity in the heart.



The procedure is done in a hospital laboratory. The staff will include a cardiologist, technicians, and nurses.

To have this study:

- Your groin and/or neck area will be cleaned and numbing medicine (anesthetic) will be applied to the skin.
- The cardiologist will then place several IVs (called sheaths) into the groin or neck area. Once these IVs are in place, wires or electrodes can be passed through the sheaths into your body.
- The doctor uses moving x-ray images to guide the catheter into the heart and place the electrodes in the right places.
- The electrodes pick up the heart's electrical signals.
- Electrical signals from the electrodes may be used to make the heart skip beats or produce an abnormal heart rhythm. This can help the doctor understand more about what is causing the abnormal heart rhythm or where in the heart it is starting.
- You may also be given medicines that may also be used for the same purpose.

Other procedures that may also be done during the test:

- Placement of a heart pacemaker
- Procedure to destroy small areas in your heart that may be causing your heart rhythm problems (called catheter ablation)

How to Prepare for the Test

You will be told not to eat or drink for 6 to 8 hours before the test.

You will wear a hospital gown. You must sign a consent form for the procedure.

Your health care provider will tell you ahead of time if you need to make changes to the medicines you regularly take. DO NOT stop taking or change any medicines without first talking to your provider.

In most cases, you will be given medicine to help you feel calm before the procedure. The study can last from 1 hour up to several hours. You may not be able to drive home afterward, so you should plan for someone to drive you.

How the Test will Feel

You will be awake during the test. You may feel some discomfort when the IV is placed into your arm. You may also feel some pressure at the site when the catheter is inserted. You may feel your heart skipping beats or racing at times.

Why the Test is Performed

Your provider may order this test if you have signs of an abnormal heart rhythm (arrhythmia).

You may need to have other tests before this study is done.

An EPS may be done to:

- Test the function of your heart's electrical system
- Pinpoint a known abnormal heart rhythm (arrhythmia) that is starting in the heart
- Decide the best therapy for an abnormal heart rhythm
- Determine whether you are at risk for future heart events, especially sudden cardiac death
- See if medicine is controlling an abnormal heart rhythm
- See whether you need a pacemaker or implantable cardioverter-defibrillator (ICD)

What Abnormal Results Mean

Abnormal results may be due to abnormal heart rhythms that are too slow or too fast. These may include:

- Atrial fibrillation or flutter
- Heart block
- Sick sinus syndrome
- Supraventricular tachycardia (a collection of abnormal heart rhythms that start in the upper chambers of the heart)
- Ventricular fibrillation and ventricular tachycardia
- Wolff-Parkinson-White syndrome

There may be other causes that are not on this list.

The provider must find the location and type of heart rhythm problem in order to determine the proper treatment.

Risks

The procedure is very safe in most cases. Possible risks include:

- Arrhythmias
- Bleeding
- Blood clots that lead to embolism
- Cardiac tamponade
- Heart attack
- Infection
- Injury to the vein

- Low blood pressure
- Stroke

References

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