

# Electrophysiologic Study (EPS)

## What is an electrophysiologic study (EPS)?

An electrophysiologic study (EPS) is a procedure used to find the source of abnormal heart rhythms. Some of these rhythms are caused by problems in the heart's conduction system. The conduction system is made up of special cells linked together in pathways. These pathways carry the electrical impulse that causes the heart to beat and pump.

EPS tests the heart's electrical function in several ways. It measures the speed of an electrical impulse traveling through the conduction system. It locates pathways that are in the wrong place. EPS helps to identify many types of abnormal heart rhythms by trying to reproduce them.

## When is it used?

EPS may be used if:

- You faint suddenly and your healthcare provider thinks it was caused by a problem with your heart.
- Your heart stops beating (cardiac arrest) when there is no evidence of heart damage.
- You have conduction pathways that are abnormal and cause very fast heart rates.

EPS is also used to test the effectiveness of different treatments for problems with your heart rhythm. Because the abnormal rhythm often can be reproduced by EPS, different medicines can be tested to see how well they work.

## How do I prepare for this procedure?

Follow the instructions your healthcare provider gives you. Eat a light meal the night before the procedure. You may be asked not to eat or drink anything for 12 hours before the procedure. Arrange for someone to drive you home afterward.

## What happens during the procedure?

The EPS procedure may last an hour or more. You will be given sedative medicine to relax you and keep you from feeling pain. You will stay awake during the procedure.

Your healthcare provider will insert one or more catheters (very small tubes) into one of the large veins in your body, usually in the groin. The catheters are pushed through the blood vessels toward the heart. They are placed in the heart's right upper chamber (right atrium) and right

lower chamber (right ventricle). The positions are checked by X-ray.

The catheters are attached to a device that measures the speed of electrical impulses inside your heart. By making different measurements, your provider can locate your heart's conduction pathways and check their condition. Sometimes your provider will try to reproduce the abnormal heart rhythm by sending an electrical charge through the catheter. Your provider can then suggest the best treatment for you.

Your provider will remove the catheter and apply pressure over the area where the catheter was inserted to control any bleeding.

### **What happens after the procedure?**

In most cases, you can get up and move after 3 to 6 hours. If you do not have a life-threatening problem, you probably will not need to stay in the hospital overnight.

### **What are the benefits of this procedure?**

The procedure will help your healthcare provider understand if medicine, a pacemaker, or an implantable defibrillator will help your symptoms or reduce your risk of sudden cardiac death.

### **What are the risks?**

There is risk with every treatment or procedure. Talk to your healthcare provider for complete information about how the risks apply to you. Problems rarely occur. Most of these problems are minor, such as a little bleeding around the area where the catheters were inserted. A heart rhythm problem sometimes starts during EPS that needs treatment with an electric shock across the chest. This treatment, called defibrillation, restores the heart rhythm to normal. You will not feel any discomfort from the shock.

### **When should I call my healthcare provider?**

Call your provider if you have:

- severe pain where the catheter was placed
- bleeding from the puncture site
- increased swelling and tenderness where the needle was

inserted.

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