

EKG and Echocardiogram [1]

An electrocardiogram (EKG or ECG) and an echocardiogram (also known as an echo) are tests that check your heart function and identify any issues that might be present. Some people with cancer who receive chemotherapy may need one of these tests, or a [multigated acquisition \(MUGA\) scan](#) [2], before cancer treatment to identify pre-existing heart conditions or during and after cancer treatment to identify chemotherapy-related heart damage. Survivors of childhood cancer who have had radiation therapy to the chest, spine, or upper abdomen and people who have had bone marrow/stem cell transplants or certain types of chemotherapy may need an EKG or echocardiogram as part of their follow-up care to identify potential heart-related late effects (side effects that occur months or years after cancer treatment). Learn more about [late effects of childhood cancer](#) [3].

Chemotherapy's effect on the heart

Some types of chemotherapy, such as anthracyclines, may damage heart tissue during cancer treatment. Examples of anthracyclines include daunorubicin (Cerubidine, Rubidomycin), doxorubicin (Adriamycin), and epirubicin (Ellence). Heart damage from chemotherapy can cause an arrhythmia (irregular heartbeat) or weaken the heart, resulting in congestive heart failure (CHF; a condition in which the heart does not pump enough blood to the rest of the body). People who have an arrhythmia may experience lightheadedness, chest pain, and shortness of breath. People with CHF may experience shortness of breath, dizziness, and swollen hands or feet.

The medical team

EKGs and echocardiograms are usually performed in a doctor's office or at a hospital. Nurses or medical technicians typically perform EKGs, while ultrasound technologists, called sonographers (health care professionals who are specially trained to operate ultrasound machines), typically perform echocardiograms. The test results are interpreted by a doctor.

About the procedures

EKG. This is a painless, noninvasive test that checks your heart's function by recording the electrical activity of different areas of the heart as wavy lines on a piece of paper.

An EKG may be performed to check for a variety of issues:

- Irregular heartbeat
- Damage to heart muscle and tissue
- Changes in the thickness of the heart walls
- Chemical or electrolyte imbalances in the body

Echocardiogram. This is an ultrasound [4] (also known as a sonogram) of your heart. An ultrasound uses high-frequency sound waves to create a picture of internal organs. The sound waves go out from and "echo" back to a wand-like device called a transducer. Like an EKG, the test is painless and noninvasive.

An echocardiogram may be performed before, during, or after cancer treatment to check for:

- Blood clots in the heart's vessels
- Previous heart attacks or other heart conditions
- Tumors
- Infections
- Problems with heart valves
- How well the heart pumps blood

Questions to ask your doctor

Before having an EKG or echocardiogram, consider asking your doctor the following questions:

- Why are you recommending this procedure?
- Do I need to do anything to prepare for this procedure?
- Who will perform the procedure?
- What will the procedure show?
- What will happen if I don't have this procedure?
- When will I find out the results?
- Who will explain the results to me?
- If my results are abnormal, what is the next step?

Preparing for the procedure

Before having an EKG or echocardiogram, tell your doctor or nurse about all of the medications you are taking and ask whether you should take them on the day of the test because some may affect the results.

In addition, check your insurance plan to find out what it covers and whether you will have any out-of-pocket costs associated with the test.

Otherwise, no preparation is necessary before an EKG or a basic echocardiogram. However, in rare cases, your doctor may recommend a transesophageal echocardiogram (TEE; an echocardiogram in which the ultrasound device is placed at the end of a thin, flexible tube that is inserted through the mouth and down into the esophagus). In preparation for a TEE, you will be asked to not eat or drink anything for several hours before the test.

During the procedure

When undergoing an EKG or echocardiogram, you will need to remove your clothing from the waist up.

During an EKG, a nurse or medical technician will place stickers (called leads or electrodes) on your chest, and wires will be connected to them. These leads collect the information about your heart's electrical activity. The activity is normal when the heart has 60 to 100 beats per minute and shows a normal rhythm and wave pattern.

You will be asked to stay still during the test, which typically lasts about five to 10 minutes. In addition, you may be asked to hold your breath or lie flat on your back to help get a better reading from the machine.

During an echocardiogram, you will lie on your side on a table. An ultrasound technician will then apply a small amount of gel to your chest and move the wand-like transducer around your chest to create images of your heart.

Like the EKG, you will be asked to stay still during the test, which typically only lasts for a few minutes.

After the procedure

You can expect to return to your normal activities, including driving, immediately after your EKG or echocardiogram.

More Information

[Tests and Procedures](#) [5]

[Late Effects](#) [6]

Additional Resources

[National Heart, Lung, and Blood Institute: Electrocardiogram](#) [7]

[MedlinePlus: Echocardiogram](#) [8]

Links:

[1] <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/ekg-and-echocardiogram>

[2] <http://www.cancer.net/node/24599>

[3] <http://www.cancer.net/node/24571>

- [4] <http://www.cancer.net/node/24714>
- [5] <http://www.cancer.net/node/24959>
- [6] <http://www.cancer.net/node/25396>
- [7] http://www.nhlbi.nih.gov/health/dci/Diseases/ekg/ekg_what.html
- [8] <http://www.nlm.nih.gov/medlineplus/ency/article/003869.htm>