

A BRIEF UPDATE

From the Long-Term Follow-Up Study

April 2013

<http://ltfu.stjude.org>

Topic: HEART HEALTH

Why we studied heart health:

Survivors of childhood and adolescent cancer are at increased risk for heart disease because of the treatments they received.

Who we studied: 18,257 LTFU Study participants

- 14,358 Survivors (7,713 male and 6,645 female)
- 3,899 Siblings (1,875 male and 2,024 female)

What we studied:

Heart disease reported on the LTFU study questionnaires by study participants

- **Congestive heart failure (CHF)** – a condition in which the heart can no longer pump enough blood to supply the body's needs.
- **Heart attack (myocardial infarction, MI)** – an interruption of the blood supply to part of the heart that causes heart cells to die. This is most commonly due to a blocked blood vessel.
- **Pericardial disease** – problems caused by excess fluid build-up in the pericardium. The pericardium is a double-walled sac that surrounds and protects the heart. If too much fluid collects in the sac, it can cause problems by putting pressure on the heart.
- **Problems with stiff or leaking heart valves**

We found that . . .

- Overall, only 5 percent of the Survivors in this study reported having heart disease.
- Survivors who received 250 mg/m² or more of anthracyclines were at greater risk of heart problems than survivors who did not receive this treatment.

- Those who received 1500 centigray or more of radiation to the heart were at greater risk of heart problems than those who received no heart radiation.

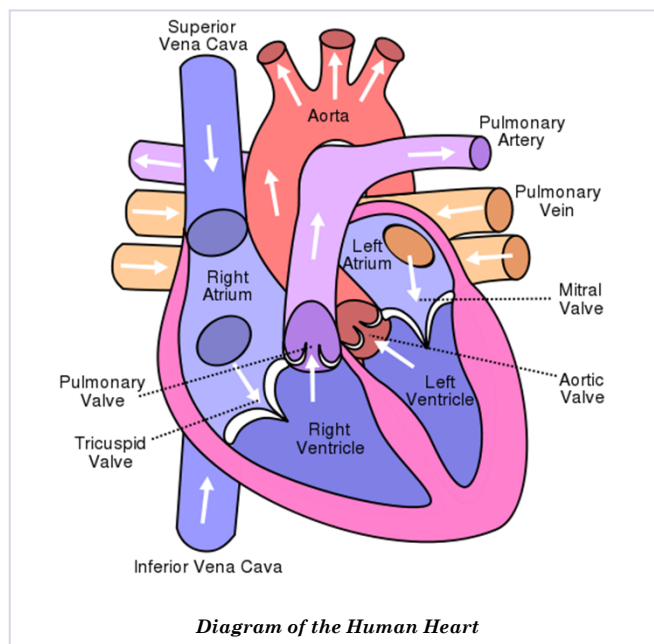


Diagram of the Human Heart

In summary:

- Most survivors, including those who were treated with anthracyclines or chest radiation, do not have any heart damage from their treatment.
- Those who received radiation to the chest or abdomen, or anthracycline chemotherapy, especially at a young age, should have a yearly check-up with special attention to any heart symptoms.
- All survivors of childhood cancer should practice good health habits that include maintaining a healthy weight, eating a balanced diet and engaging in regular physical exercise.
- Doctors and other health care providers need to be aware of the risk of heart disease faced by young adult survivors of childhood cancer.

Reference

- Mulrooney DA, Yeazel MW, Kawashima T, Mertens AC, Mitby P, Stovall M, Donaldson SS, Green DM, Sklar CA, Robison LL, Leisenring WM. Cardiac outcomes in a cohort of adult survivors of childhood and adolescent cancer: retrospective analysis of the Childhood Cancer Survivor Study cohort. *British Medical Journal* 2009; 339:b4606.

Take Care of Your Heart

Adapted from the Children's Oncology Group Health Link

Know your treatment history!

- Most survivors, including those who were treated with anthracyclines or chest radiation, do not have any heart damage from their treatment. However, certain types of cancer treatment given during childhood can sometimes result in heart problems. Also, survivors may experience problems with heart disease at younger ages than do people who did not undergo treatment for a serious childhood illness like cancer.
- Since heart problems may happen many years after cancer treatment, it is important for childhood cancer survivors to be aware of any treatments they received that might affect the heart. That way, they can take steps to keep their heart healthy, including regular medical check-ups and tests to monitor heart function. And, if a problem develops, it can be detected early. **For complete information, please see the Health Link (web address at bottom of page.)**

What types of treatments can cause heart problems?

Anthracycline chemotherapy may cause problems with heart muscle function (left ventricular dysfunction, cardiomyopathy) and abnormal heart rhythms (arrhythmias). Commonly used anthracyclines include:

- Doxorubicin (Adriamycin)
- Daunorubicin (daunomycin, Cerubidine)
- Idarubicin (Idamycin)
- Mitoxantrone (Novantrone)
- Epirubicin

Radiation therapy to certain areas may lead to scarring and stiffening of heart tissues, causing abnormal heart rhythms (arrhythmias) and problems with the heart muscle (cardiomyopathy), heart valves (valvular stenosis or valvular insufficiency), blood vessels (coronary artery disease), and the membrane around the heart (pericarditis or pericardial fibrosis). These areas include:

- Chest or thorax (including mantle, mediastinal, and axillary treatment fields)
- Spine (chest or thoracic portion of the spine)
- Abdomen
- Total body irradiation (TBI)

In severe cases, these heart problems may result in a heart attack (myocardial infarction), a dangerous heart rhythm (arrhythmia), or an inability of the heart to pump blood properly (congestive heart failure).

Precautions for special situations

- To prevent a serious infection of the heart, survivors with leaky or scarred heart valves and those with active chronic graft-versus-host disease (cGVHD) following a bone marrow transplant may need to take an antibiotic before having dental work or other invasive medical procedures performed.
- Pregnancy and illnesses that produce a high fever can cause stress to the heart. Survivors whose cancer treatment included medicines that can affect heart function, should inform their healthcare providers so that steps can be taken to reduce stress on their heart in these situations.
- Some other medical problems, including obesity, high blood pressure, high cholesterol or triglyceride levels in the blood, and diabetes, may increase the risk of heart problems from cancer therapy. It is very important to practice good health habits to help minimize the risk from these conditions.
- Survivors treated with anthracyclines or chest radiation should check with their healthcare providers before beginning any exercise program. Aerobic exercise (brisk walking, running) is generally safe and actually healthy for the heart. Intensive isometric exercise, such as heavy weight lifting and wrestling, should generally be avoided.

For more information:

Children's Oncology Group Health Link – Heart Health
<http://www.survivorshipguidelines.org/pdf/HeartHealth.pdf>

American Heart Association

<http://www.americanheart.org>

Physical activity and dietary guidelines from the U.S. Department of Health and Human Services

<http://www.health.gov>