

For all survivors, while late effects sometimes lead to problems  
They are the result of life saving treatment: they can be tackled  
Let's face them!!!

Cancer is like any other chronic disease:  
It needs a long term systematic follow up

It is not necessary that a survivor will have a late effect



Survivors with a late effect can also lead normal  
lives....They can do jobs, get married and could  
have children too!!!



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# Childhood Cancer

## Late Effects & Survivorship

## What You Should Know



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## What are Late Effects?

- ❖ Medical conditions that occur months to years after cancer diagnosis and treatment
- ❖ Can occur during treatment and persist long-term
- ❖ Can be new late-onset medical problems

## Who is a childhood cancer survivor?

- ❖ Anyone who has survived childhood cancer. After five-years disease free, most are considered “cured” of cancer.
- ❖ Family members, friends and caregivers impacted by the survivorship experience are also survivors
- ❖ Evaluation and treatment of late effects is an important part of survivorship care.

## Causes of late effects

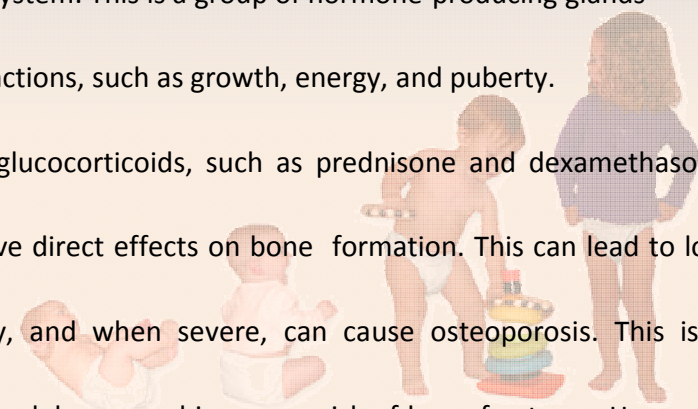
Any cancer treatment may cause late effects, including chemotherapy, radiation therapy, surgery, and stem cell/bone marrow transplantation.

A child's risk of developing late effects depends on many factors:

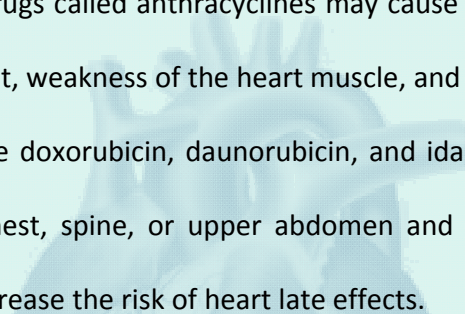
- ❖ Type and location of cancer
- ❖ Area of the body treated
- ❖ Type and dose of treatment
- ❖ Child's age when treated
- ❖ Genetics and family history
- ❖ Other health problems that existed before the cancer diagnosis

## Types of late effects

**Growth, development, and hormone problems:** Cancer treatments may affect the endocrine system. This is a group of hormone-producing glands that controls body functions, such as growth, energy, and puberty. Steroid drugs called glucocorticoids, such as prednisone and dexamethasone and methotrexate have direct effects on bone formation. This can lead to low bone mineral density, and when severe, can cause osteoporosis. This is a disease that causes weak bones and increases risk of bone fractures. However, most children regain their bone density after stopping these medications.



**Heart problems:** Drugs called anthracyclines may cause heart problems, such as abnormal heart beat, weakness of the heart muscle, and congestive heart failure. These drugs include doxorubicin, daunorubicin, and idarubicin (Idamycin). Also, radiation to the chest, spine, or upper abdomen and bone marrow/stem cell transplants may increase the risk of heart late effects.



Childhood cancer survivors should visit their doctor yearly for follow-up care because heart conditions may cause symptoms years after stoppage of cancer treatment. They should have noninvasive tests that check how the heart is functioning about two years after treatment. These tests include an electrocardiogram (ECG or EKG) done after consultation of a cardiologist.



**Children should receive regular check-ups to monitor their growth throughout puberty.**

Radiation therapy near the brain, eyes, or ears can affect the pituitary gland, which helps control growth and puberty. Children who received radiation therapy to these areas who have not reached adult height may have growth problems. They may reach puberty earlier or later than usual. Children who have had radiation therapy to the pituitary gland also have a higher chance of being obese and overweight. An endocrinologist can test for these conditions and provide hormone treatments. An endocrinologist is a doctor who specializes in treating hormone problems.

Radiation treatment given to the muscles, bones, and soft tissues can lead to reduced or uneven growth and cause other health conditions. For example, it could lead to scoliosis, which is a sideways curving of the spine.

Radiation therapy to neck may cause hypothyroidism which is often seen in children undergoing treatment for Hodgkin lymphoma.

**Lung and breathing problems:** Certain types of chemotherapy, including bleomycin may cause lung damage. Chest radiation and surgery to the chest or lungs may also cause lung problems like difficulty in respiration, chronic cough and cyanosis. Children who received cancer treatment at a younger age have a greater risk of lung and breathing problems. Childhood cancer survivors should have a baseline test of lung function at least two years after treatment. You should discuss with your chest physician.

**Learning and memory problems:** Children who received radiation therapy to the brain or high doses of certain drugs may be more likely to have these problems. They could have difficulties in thinking, learning, problem solving, remembering, paying attention and concentrating on various topics.

**Dental problems:** Radiation therapy to the mouth, head, or neck may cause problems such as dry mouth, gum disease, and cavities. Chemotherapy, especially when given to a child whose adult teeth have not formed, may cause tooth development problems. Childhood cancer survivors should visit their dentist every 6 months for check-ups. Talk with your child's dentist before and after treatment for guidance on reducing these potential late effects.



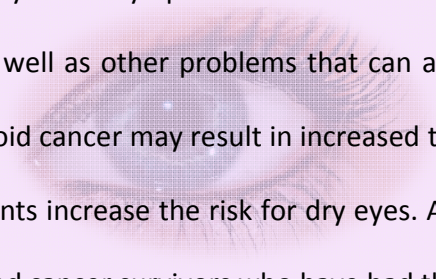
**Digestive system problems:** Abdominal or pelvic surgery and radiation therapy to the neck, chest, abdomen, or pelvis can affect the gastrointestinal system. Childhood cancer survivors should talk with their doctor if they have stomach pain or long-term constipation, diarrhea, heartburn, or nausea and vomiting.



**Hearing problems:** Radiation treatment to the head or brain may cause hearing loss. Some chemotherapy, such as cisplatin or carboplatin may also affect hearing. Younger children are at greater risk for these problems. All survivors of childhood cancer should have their hearing tested at least once after treatment by an audiologist.



**Vision and eye problems:** High doses of radiation to the eye, eye socket, or brain may cause eye problems. This includes cataracts, or clouding of the eye lens, as well as other problems that can affect vision. Radioiodine treatment for thyroid cancer may result in increased tearing, and bone marrow/stem cell transplants increase the risk for dry eyes. An ophthalmologist should evaluate childhood cancer survivors who have had these treatments.



After completion of treatment children might have some psychological problems concerning emotional and social aspects as difficulty with respect to reintegrating into school or family after treatment. They might experience depression, anxiety and fear of recurrence of disease and post traumatic stress.

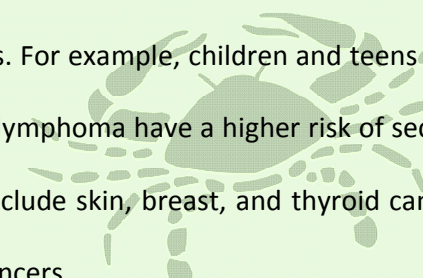
**Reproductive and sexual development problems.** Boys and girls both are at risk for these problems.

In boys, radiation therapy to the lower abdomen, pelvis, or testicles and chemotherapy with alkylating agents, such as cyclophosphamide and ifosfamide may cause infertility. These treatments may also change levels of the male hormone, testosterone, which can affect puberty and sexual functioning.

In girls, chemotherapy and radiation treatment to the abdomen, pelvis, or lower spine can affect the ovaries. This may cause infertility, irregular periods, and early menopause. These treatments also change levels of the female hormone, estradiol, which can affect puberty and sexual functioning.

For both boys and girls, radiation to the head can affect glands that regulate the male and female hormone levels. This could also affect fertility.

**Second cancers:** Childhood cancer survivors have a slightly increased risk of having a second cancer. This is a different type of cancer that appears after the first cancer diagnosis. Radiation therapy and some types of chemotherapy (cyclophosphamide, ifosfamide, etoposide, daunorubicin, and doxorubicin) have the strongest links to secondary cancers. For example, children and teens who received radiation therapy for Hodgkin lymphoma have a higher risk of second cancers. Common secondary cancers include skin, breast, and thyroid cancer. It is important to know about second cancers



## What Can You Do?

- ❖ Know details of your cancer and its treatment
- ❖ Understand YOUR risks for specific late effects
- ❖ Follow guidelines for follow up tests and evaluation as advised by treating physician
- ❖ Maintain a healthy lifestyle
- ❖ Avoid smoking or chewing tobacco
- ❖ Eat a healthy diet and be physically active
- ❖ Wear sunscreen

## Ask your doctor the following questions:

- ❖ Would you write down which treatment(s) I received? Do not forget to collect your after treatment completion card (ATCC)
- ❖ Am I at risk for specific late effects?
- ❖ What other specialists (such as a cardiologist or endocrinologist) should I see to monitor potential late effects?
- ❖ Should I watch for any signs or symptoms of late effects?

## Healthy Lifestyle

**सही खाओ, व्यायाम करो, स्वस्थ रहो और मस्त रहो !**

अनाज	सब्जियाँ	फल	दूध	दालें और प्रोटीन
आटा बिना छाने खाएं। मोटा अनाज खाएं। मैदा कम इस्तेमाल करें।	मौसमी सब्जियाँ बदल बदल कर खाएं।	मौसम के अनुसार फल खाएं।	मक्खन निकला हुआ (टॉड) दूध पियें एवं दुग्ध निमित्त उत्पाद जैसे पनीर, दही, लस्सी/छाछ इत्यादि लें।	विभिन्न प्रकार की एवं अंकुरित दालें खाएं। बिना पॉलिश की दालें खाएं।

**तेल/घी कम मात्रा में खायें**

**जंक फूड** स्वच्छ जल ही सबसे स्वस्थ पिय है।  
 8 लवंग के कैसर  
 मोटापे से, डबलक होने पर, 8 लवंग के कैसर का कतरा बदल है।  
 स्वस्थ खाओ तन मन जगजाओ

**स्वस्थ जीवन शैली के रास्ते**

नशा, तम्बाखू और शराब लाये रोगों का सैलाब, करे टीबी, कैंसर और जीवन पूरा खराब।  
 टीबी, फेफड़े का कैंसर, मुंह-गले का कैंसर, त्रिफ, मुँह फेन

जल्दी सोएं, 6-8 घंटे सोएं, जल्दी उठें रात भर जाग कर परीक्षा की तैयारी न करें।  
 बुराई विरोधक, तनावजनक

यौन जानकारी, सुरक्षित यौन सम्बन्ध एवं टीककरण भी, कैंसर से बचाव का रास्ता है।  
 STOP, Sexually Transmitted Diseases, HPV टीका

**रचनात्मक गतिविधियाँ एवं सकरात्मक दृष्टिकोण रखें** सक्रिय रहें प्रतिदिन

**खेले कूटें, मस्त रहें** छोड़ें आराम, करें व्यायाम

**Get immunized for Hepatitis B, Human papillomavirus (HPV)**