

Preventing Cardiovascular Complications after Treatment for Childhood Cancer

As people get older, the risk for developing cardiovascular problems, such as heart attack and stroke, increases. Additional factors that increase the risk of developing cardiovascular problems include:

- Being overweight or obese
- Having high blood pressure
- Having high blood sugar
- Having unhealthy cholesterol levels
- Smoking

Certain cancer treatments given during childhood, adolescence, or young adulthood may increase the risk of developing these health conditions. It is important for you to be aware of these risks so that you can practice healthy habits that can help prevent cardiovascular problems.

What increases the risk for being overweight or obese?

Treatment factors:

- Radiation to the brain or head (especially at doses of 18 Gy or higher)
- Surgery to the brain affecting the “mid-brain” area (containing the pituitary gland)

Other known risk factors:

- Overeating
- Eating a diet that is high in fats and sugars
- Not having regular physical activity
- Having certain medical conditions, like an underactive thyroid (hypothyroidism), or deficient (too low) levels of growth hormone

What increases the risk for high blood pressure?

Treatment factors:

- Treatments that can damage the kidneys may increase the risk for high blood pressure. These include:
 - Ifosfamide
 - Cisplatin
 - Carboplatin
 - Methotrexate
 - Radiation involving the kidneys, including the abdomen, flank, and total body (TBI)
 - Removal of one kidney (see related Health Link: “Single Kidney Health”)
 - Hematopoietic cell transplant (particularly if complicated by chronic graft-versus-host disease)

Other known risk factors:

- Being overweight or obese
- Having a family history of high blood pressure
- Not getting regular physical activity
- Eating a diet that is high in salt

What increases the risk for unhealthy cholesterol levels (including high triglycerides and low HDL)?

Treatment factors:

- Total body irradiation (TBI)

Other known risk factors:

- Being overweight or obese
- Having a family history of unhealthy cholesterol levels
- Not getting regular physical activity
- Eating a diet high in saturated fats

What increases the risk for high blood sugar/diabetes mellitus?

Treatment factors:

- Abdominal radiation
- Total body irradiation (TBI)
- Prolonged treatment with corticosteroids, such as prednisone or dexamethasone

Other known risk factors:

- Being overweight or obese (note that survivors who received TBI may be at increased risk even if they are not overweight or obese)
- Having a family history of diabetes

How I can I tell if I am overweight or obese?

Have your height and weight measured, and then calculate your Body Mass Index (BMI). Calculators are available on-line at www.cdc.gov/healthyweight/assessing/bmi/ for adults and for children/teens. Enter your height and weight into the calculator, and it will determine your BMI (for adults) or BMI percentile (for children/teens). Results can be interpreted as follows:

- For adults (20 years and older):
 - Healthy: BMI 18.5–24
 - Overweight: BMI 25–29
 - Obese: BMI 30 and greater
- For children/teens (younger than age 20 years):
 - Healthy: BMI percentile 5–84
 - Overweight: BMI percentile 85–94
 - Obese: BMI percentile 95 and greater

What other testing should be done?

Recommended screening depends on your treatment history and current health status, and may include one or more of the following:

- Blood pressure check (yearly)
- Fasting blood test for cholesterol levels (every two years)
- Fasting blood test for glucose or Hemoglobin A1c (every two years)

What can I do to lower my risk of cardiovascular complications?

- Get regular check-ups and follow your health care provider's recommendations
- Eat a healthy diet (See related Health Link: "Diet and Physical Activity")
- Increase physical activity if you are able (See related Health Link: "Diet and Physical Activity")
- If you don't smoke, **don't start**.
- If you do smoke, **quit**. Ask your health care provider for help. On-line assistance is also available from the National Institutes of Health at www.smokefree.gov.
- If you are overweight, obese, have high blood pressure, unhealthy cholesterol levels and/or high blood sugar, see your health care provider regularly. Follow their recommendations for additional testing, if needed, and for ongoing treatment of your health condition.
- In some cases, medications may be required to treat these conditions. If you are prescribed medications, be sure to take them regularly and to carefully follow your health care provider's instructions.

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Additional health information for childhood cancer survivors is available at
www.survivorshipguidelines.org

Note: Throughout this *Health Links* series, the term "childhood cancer" is used to designate pediatric cancers that may occur during childhood, adolescence, or young adulthood. Health Links are designed to provide health information for survivors of pediatric cancer, regardless of whether the cancer occurred during childhood, adolescence, or young adulthood.

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