

Let's Talk About...

CT Scans for Children with Head Injuries

Head injuries are common in children. Fortunately, most head injuries (head traumas) are not dangerous. However, serious injuries sometimes do occur, so the doctor will do tests to make sure there aren't other problems. They may recommend a CT scan of your child's head.

What is a CT scan?

A CT scan (sometimes called a **CAT scan**) is a test that uses x-rays to create clear, detailed images of body tissues. A CT scan of the skull and brain is a good test to quickly see a dangerous injury after head trauma. While your child may be worried about the test, CT scans are painless and usually take less than 10 minutes.

What are the risks of CT scans?

CT scans don't have any immediate risks. However, they use ionizing [I-oh-NY-zing] radiation, or radiation with more energy, which slightly increases your child's risk of developing cancer in the future. CT scans involve much more radiation exposure than regular x-rays.

How does radiation affect my child?

The natural radiation everyone is exposed to daily (from the sun, soil, air, rocks, and even building materials) is called **background radiation**. To understand the amount of radiation exposure from a test that uses x-rays, compare the test's radiation to daily background radiation. For example:

- A chest x-ray exposes a person to about one day's worth of background radiation.
- A head CT exposes a person to about 8 months' worth of background radiation.



Girl about to receive a CT scan

Doctors know that exposure to high doses of radiation (much higher than the amounts used in medical tests) causes an increased risk of cancer. Most experts agree that there is also some increased risk of cancer from x-ray radiation.

Cancer can occur naturally in children. About 1 in 285 children will get cancer before their 20th birthday each year, according to the National Cancer Institute.

However, the risk of a childhood head CT causing a fatal cancer is much smaller, affecting about 1 in 5,000 to 1 in 10,000 children each year who've had a CT scan. There is a higher risk in younger patients.

How does the doctor know if my child needs a CT scan?

To determine whether your child needs a CT scan, their doctor will consider:

- How the injury happened
- Your child's behavior since the injury
- The results of your child's physical exam
- Guidelines based on head trauma studies

The doctor will also talk about the risks and benefits of a CT scan for your child. In many cases, watching your child for a time at the hospital is enough to ensure that your child hasn't had a serious injury.

Is it safe for my child to go home without a CT scan?

You can take your child home without a CT scan if the doctor says it's okay. Most children who go home after a minor head trauma have a mild brain injury, sometimes called a **concussion** [cun-CUH-shun].

At home, follow the general instructions in the box at the right or any special instructions your child's doctor gave you when your child was discharged.

Care at home after a head injury

Once you take your child home from the hospital after a head injury, follow these guidelines to keep them safe.

- **Give your child acetaminophen (Tylenol) for a mild headache if the doctor says it's okay.** Your child may also have nausea, lightheadedness, trouble concentrating, and other minor symptoms.
- **Call your child's regular doctor (primary care provider).** Your child should see the doctor within 1 or 2 days of the head injury.
- **Don't let your child play sports or do other activities that require balance (like riding a bike) until the primary care provider says it's okay.** If your child has a second head injury before the first has fully healed, they are at risk for serious health problems.
- **Watch for worsening or serious symptoms and go to the emergency room if your child:**
 - Is confused or abnormally alert
 - Has trouble staying alert or awake
 - Is vomiting over and over
 - Has a severe headache
 - Has a seizure

Talking with your child's doctor about CT scans

The table below lists the potential benefits, risks, and alternatives for head CT scans. Talk to your child's doctor and ask questions about this test to determine if it's best for your child.

Possible benefits	Risks and possible complications	Alternatives
A head CT scan takes detailed images of the brain and skull. It allows the doctor to see if your child has a dangerous injury after head trauma.	A child who has a head CT scan has a higher risk of developing cancer in the future. This is because CT scans use higher amounts of radiation than x-rays and other tests.	The main alternative to a head CT scan is having nurses and doctors watch your child for a while at the hospital. They will make sure your child doesn't have a serious brain injury.

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