

Radiation was introduced into medicine almost immediately after discovery of the x-ray by Wilhelm Roentgen in 1895. Since then use of imaging technologies like CT, MRI and nuclear medicine scans have exploded.

Spending on medical imaging doubled between 2000 and 2006 to reach about \$14 billion a year, and that is just for Medicare spending alone, according to a study by the Government Accountability Office.

And a 10-year study by University of California, San Francisco researchers found the use of CT scans doubled between 1997 and 2006.

While high-tech imaging can be beneficial in certain cases, they must be used with caution because they expose your body to dangerous radiation -- radiation that is proven to cause cancer. So when a doctor has a financial interest in promoting diagnostic scans performed in his or her own office, it sets the stage for vast overuse.

### **Widely Overused CT Scans May Cause 3 Million Excess Cancers**

More than 62 million CT scans per year are performed in the United States, including at least 4 million on children, according to a report in the [New England Journal of Medicine](#) (NEJM). This is up from just 3 million in 1980.

But what many people don't know is that CT scans emit far more radiation than conventional X-rays -- a CT scan of the chest delivers **100 times** the radiation of a conventional chest X-ray.

What's more, CT scans given to kids are typically calibrated for adults, so children absorb two to six times the radiation needed to produce clear images -- and [1,500 may die each year of radiation-induced cancer](#) later in life.

Further, the NEJM study estimated that overuse of diagnostic CT scans may cause up to 3 million excess cancers in the next two or three decades. David Brenner of Columbia University, lead author of the study, told [USA Today](#):

*"About one-third of all CT scans that are done right now are medically unnecessary ... Virtually anyone who presents in the emergency room with pain in the belly or a chronic headache will automatically get a CT scan. Is that justified?"*

### **Mammograms: Another Dangerous Screening Tool**

Health officials recommend that all women over 40 get a [mammogram](#) every one

to two years, yet this is another example of an imaging technique gone bad.

When you get a mammogram, the four films of each breast that are routinely taken annually result in approximately 1 rad (radiation absorbed dose) exposure, which is about **1,000 times greater than that from a chest x-ray.**

Even the American Cancer Society lists high-dose radiation to the chest as a medium to high risk factor for developing cancer.

### **How Radiation from Medical Imaging May Damage Your Body**

X-rays and other classes of ionizing radiation have been, for decades, a proven cause of virtually all types of mutations -- especially structural chromosomal mutations. Additionally, x-rays are an established cause of genomic instability, often a characteristic of the most aggressive cancers.

Further, cells cannot correctly repair every type of complex genetic damage induced by ionizing radiation, and sometimes cells cannot repair such damage at all.

Unlike some other mutagens, ionizing radiation has access to the genetic molecules of every internal organ, if the organ is within the x-ray beam. Within such organs, even a single high-speed high-energy electron, set into motion by an x-ray photon, has a chance of inducing the types of damage that defy repair. That is why there is no risk-free dose-level when it comes to ionizing radiation.

And when such mutations are not cell-lethal, they endure and accumulate with each additional exposure to x-rays or other ionizing radiation.

In fact, according to John Gofman, M.D., Ph.D., who is one of the leading experts in the world on this issue, evidence strongly indicates that over 50 percent of the death rate from cancer, and over 60 percent of the death rate from ischemic heart disease, [may be x-ray-induced](#) (including fluoroscopy and CT scans).

Another often-overlooked risk is the problem of misdiagnosis, such as was common in the [full body scans](#) that became popular a few years back. If the scan shows you have a problem, it causes a dramatic increase in diagnostic medical interventions to follow up on false negative test results.

And false positive diagnoses are very common -- as high as 89 percent in mammograms -- leading many to be unnecessarily and harmfully treated by mastectomy, more radiation, or chemotherapy. Just the stress from having to cope with a diagnosis of a potential cancer could be enough to move the body

toward disease and away from health.

### **Alternatives to CT Scans and Mammograms**

There may be times when a CT scan could be warranted, depending on your condition, but typically I suggest avoiding CT scans as much as possible. Typically an MRI scan can easily be substituted for a CT scan and it has far less dangerous side effects.

For women, most physicians continue to recommend mammograms for fear of being sued by a woman who develops breast cancer after he did not advise her to get one. But I encourage you to think for yourself and consider the far safer and more effective alternative called [thermographic breast screening](#).

Thermographic screening measures the radiation of infrared heat from your body and translates this information into anatomical images. It uses no mechanical pressure or ionizing radiation, and can detect signs of breast cancer as much as 10 years earlier than either mammography or a physical exam.

Remember, any time your body is exposed to radiation from x-rays or the even higher dose CT scans, your cells can be damaged. So whenever possible, avoid such imaging techniques and use the far safer alternative of MRI scanning, or the [completely safe screening tool called thermography](#).

### **Related Links:**

- » [X-rays, Cancer and Heart Disease](#)
- » [Reconsider Having Screening Full-Body CT Scans](#)
- » [1500 Children Die Every Year From CT Scans](#)