

# Gov't says full-body scanners at airports are safe

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An airline passenger undergoes a full body scan at O'Hare International Airport Wednesday, Nov. 17, 2010 in Chicago. (AP Photo/Charles Rex Arbogast)

(AP) -- They look a little like giant refrigerators and pack a radiation dose big enough to peer through clothing for bombs or weapons, yet too minuscule to be harmful, federal officials insist. As the government rolls out hundreds more full-body scanners at airports just in time for crowds of holiday travelers, it is working to reassure the public that the machines are safe.

An independent group of experts agrees, as long as radiation doses are kept within the low limits set for the scanners. Still, a few scientists worry that machines might malfunction, raising the risk of cancer.

The Transportation Security Administration says radiation from one scan is about the same as a person would get from flying for about three minutes in an airplane at 30,000 feet, where atmospheric radiation levels are higher than on the ground. That amount is vastly lower than a single dental X-ray.

You would have to go through scanners more than 1,000 times in one year to even meet the maximum recommended level - and even pilots don't do that.

"We are confident that full-body X-ray security products and practices do not pose a significant risk to the public health," officials from the Food and Drug Administration and the TSA wrote in a letter last month to White House science adviser John Holdren.

Yet ripples of concern have surfaced among some passengers fearful about excess radiation, among some flight crews already overexposed to radiation in the air and even among a few scientists.

"The thing that worries me the most is what happens if the thing fails in some way" and emits too much radiation, said Arizona State University physics professor Peter Rez.

The risk for failure is higher than in a medical setting because the machines are operated much more often, and by TSA workers without medical training, Rez said.

American Airlines pilot Sam Mayer said pilots he knows are opting out of being scanned.

"All they're telling the public is that it's fine. We're looking for some science" to back that up, Mayer said. The FDA says the science does establish the machines' safety.

Airline pilots and other flight crew members face a slightly increased lifetime risk of developing cancer, about 1 percent higher than the general population, according to the Health Physics Society, a nonprofit group of scientists and other professionals involved in radiation safety.

"Radiation has always been a concern of pilots because of what we do," Mayer said. "This is just one more exposure on top of what we're getting."

Mayer stressed that pilots are equally upset with the TSA's option for people who don't want full-body scans - body pat-downs that critics say are akin to groping.

"We want the TSA to stop the bad guys, and that's not us," Mayer said.

About 385 scanners, each costing up to \$170,000, are already in place at more than 60 airports. The TSA is adding more and expects to have 500 total in place by year's end.

About half are what are known as millimeter-wave units, made by L-3 Communications, which are not the focus of safety concerns because they emit a less potent kind of radiation. The remaining machines are Rapiscan System's "backscatter" scanners, which emit X-ray-like ionizing radiation. This kind of radiation in larger doses can cause cell changes leading to cancer.

"From a strictly radiation-safety standpoint, there would be no concern" with either type of scanner, said Richard Morin, a radiology specialist at the Mayo Clinic in Jacksonville, Fla. "For both of them, levels for radiation are pretty much insignificant."

The Health Physics Society says the screening is justified if radiation doses do not exceed standard limits, and if the public is informed of the

radiation exposure.

The National Council on Radiation Protection & Measurements, an independent group that advises the government on radiation issues, examined backscatter screening at the request of the [Food and Drug Administration](#). It said non-ionizing scanners should be considered first, if possible. But it also recommended limits for backscatter radiation and said health risks would be minimal if doses were below those limits. The government insists that they are.

David Schauer, the council's executive director, says he has no qualms about being scanned by backscatter devices, and would allow his three sons to be scanned, too.

TSA spokesman Nick Kimball said Thursday that both types of scanners are safe, cost about the same and are similarly effective. He said the TSA chose to use both types to keep the process competitive and to "drive innovation."

He noted that unlike medical workers who deal with more potent radiation, TSA employees do not need to wear protective gear while operating the scanners.

Scanners are tested for safety before being set up at airports and tested again periodically once they are in place, said Daniel Kassiday, an FDA radiation expert.

The FDA has estimated that the risk of fatal cancer from the maximum allowable dose would be 1 in 80 million per backscatter screening. And doses from a single scan are considerably lower than the maximum, Kassiday said.

By comparison, the chance of dying in a car driven for 40 miles are 1 in

1 million.

Rez agrees the odds of getting cancer from the scanners may be low. But he calculates it's about the same as the chance of being on a plane blown up by terrorists. And he says that makes mass scanning not worth the effort.

The government says independent testing proved the airport scanners are safe. Johns Hopkins University's Applied Physics Laboratory did independent tests - but only to determine how much radiation the devices emit, not to examine safety, said Helen Worth, a lab spokeswoman.

The amount of radiation the devices emit in a lab setting versus real-world use may be different, and a group of scientists from the University of California at San Francisco argues that tougher safety testing is needed.

The four scientists expressed their concerns in an April 6 letter to Holdren, the White House adviser. It took him six months to respond.

Though the scanner images do not reveal what's beneath the skin's surface, the radiation they emit could potentially affect breast tissue, sex organs and eyes, said David Agard, an imaging expert at the University of California at San Francisco.

The response "is just a regurgitation of what the industry people have been saying," said John Sedat, a UCSF professor emeritus in biochemistry and biophysics.

He faulted the government for not doing safety testing in animals to see if the scanners caused any worrisome biochemical changes. Kassiday said the university scientists have not justified why that kind of testing on such low-dose devices would be necessary.

**More information:**

TSA: <http://www.tsa.gov>

National Council on Radiation Protection and Measurements:

<http://www.ncrponline.org>

Health Physics Society: <http://www.hps.org>

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