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Oral Health Topics

X-rays/Radiography

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Overview

Dental X-ray examinations provide valuable information that helps your dentist evaluate your oral health. With the help of radiographs (the term for pictures taken with X-rays), your dentist can look at what is happening beneath the surface of your teeth and gums. If you have questions about your dental X-ray exam, talk with your dentist.

Frequently Asked Questions (FAQ)

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How do dental X-rays work?

As X-rays pass through your mouth they are mostly absorbed by teeth and bone because these tissues, which are called hard tissues, are denser than cheeks and gums, which are called soft tissues. When X-rays strike the film or a digital sensor, an image called a radiograph is created. Radiographs allow your dentist to see hidden abnormalities, like tooth decay, infections and signs of gum disease, including changes in the bone and ligaments holding teeth in place

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How often should radiographs be taken?

How often X-rays (radiographs) should be taken depends on your present oral health, your age, your risk for disease, and any signs and symptoms of oral disease you may be experiencing. For example, children may require X-rays more often than adults. This is because their teeth and jaws are still developing. Also their teeth are more likely to be affected by tooth decay than those of adults. Your dentist will review your history, examine your mouth and then decide whether or not you need radiographs.

If you are a new patient, the dentist may recommend radiographs to determine the present status of your oral health and to help identify changes that may occur later. A new set of X-rays may be needed to help your dentist detect any new cavities, determine the status of your gum health or evaluate the growth and development of your teeth. If a previous dentist has any radiographs of you, your new dentist may ask you for copies of them. Ask both dentists to help you with forwarding your X-rays.

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What are the benefits of a dental radiograph examination?

Because many diseases of the teeth and surrounding tissues cannot be seen when your dentist examines your mouth, an X-ray examination can help reveal:

- small areas of decay between the teeth or below existing restorations (fillings);
- infections in the bone;
- periodontal (gum) disease;
- abscesses or cysts;
- developmental abnormalities;
- some types of tumors.

Finding and treating dental problems at an early stage can save time, money and unnecessary discomfort. Radiographs can help your dentist detect problems in your mouth that otherwise would not be seen.

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How do dental X-rays compare to other sources of radiation?

The amount of radiation that we are exposed to from dental X-rays is very small compared to our daily exposure from things like, cosmic radiation and naturally-occurring radioactive elements (for example, those producing radon).

The table below compares our estimated exposure to radiation from dental X-ray with other various sources. As indicated below, a millisievert (mSv) is a unit of measure that allows for some comparison between radiation sources that expose the entire body (such as natural background radiation) and those that only expose a portion of the body (such as X-rays).

Source	Estimated Exposure (mSv)
Man Made	
Dental X-rays	
Bitewing radiographs	0.038
Full-mouth series	0.150
Medical X-rays	
Lower gastrointestinal tract radiography	4.060
Upper gastrointestinal tract radiography	2.440
Chest radiograph	0.080
Natural	
Cosmic (Outer Space) Radiation	
Average radiation from outer space In Denver, CO (per year)	0.510
Earth and Atmospheric Radiation	
Average radiation in the U.S. from Natural sources (per year)	3.000

Source: Adapted from Frederiksen NL. X-Rays: What is the Risk? Texas Dental Journal. 1995;112(2):68-72.

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What if I'm pregnant and need a dental radiograph examination?

A radiograph may be needed for dental treatment that can't wait until after the baby is born. Because untreated dental infections can pose a risk to the fetus, dental treatment may be necessary to maintain the health of the mother and child. Radiation exposure resulting from dental X-rays is low. However, every precaution is taken to ensure that radiation exposure is As Low As Reasonable Achievable ([the ALARA principle](#)). A leaded apron minimizes exposure to the abdomen and should be used when any dental radiograph is taken. Also, a leaded thyroid collar can protect the thyroid from radiation, and should also be used whenever possible. The use of a leaded thyroid collar is recommended for women of childbearing age, pregnant women and children. Dental X-ray exams do not need to be delayed if you are trying to become pregnant or are breast feeding.

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Additional Resources

For more scientific information about radiation see:

- [Radiation Answers sponsored by the Health Physics Society](#)
- [The EPA Ionizing Radiation Fact Book](#)

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Please note: The ADA does not provide specific answers to individual questions about fees, dental problems, conditions, diagnoses, treatments or proposed treatments, or requests for research. Information about dental referrals, complaints and a variety of dental procedures may be found here. You can also refer to our [Frequently Asked Questions](#) page for answers to common questions.

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