



Valley Endodontics

Specialists in Root Canal Therapy

Barry Vilkin, D.M.D., M.Sc.D. • Ariella Glodowski, D.D.S.

Dental Radiation is Safe, and Here's Why:

Radiation is all around us. Living on Earth exposes us to various natural sources of radiation, and it is a part of everyday life. However, scientists agree that it's important to minimize our exposure to radiation when possible. Dentists follow a general principle known as ALARA—As Low As Reasonably Achievable—to limit radiation exposure during dental procedures.

Dental x-rays are essential for diagnosing and treating dental issues before they become serious or painful. A visual examination alone is often not enough to reveal all the necessary details about a tooth's health or specific areas in your mouth. X-rays allow dentists to accurately assess these concerns, providing the best possible care. Thanks to advances in dental technology, modern digital x-rays now expose patients to extremely low levels of radiation. Over the years, dental radiation technology has improved significantly, and today's procedures use minimal radiation during routine exams. Innovations like 'Rectangular Collimation' help further reduce exposure and enhance image quality. In fact, technological advancements are so significant that lead aprons and thyroid collars are no longer required in most states. While California has not yet adopted this recommendation, it is likely to do so in the near future.

Types of Dental X-rays:

- ❖ Periapical X-rays: These show a tooth from crown to root (top to bottom) and typically display 1-2 teeth. They help detect cavities, root infections, or other oral health issues in the surrounding area.
- ❖ Bitewing X-rays: Used to examine the crowns of the teeth, especially for detecting cavities between them.
- ❖ Panoramic X-rays: Provide an image of the entire mouth, offering a comprehensive view of the teeth, jaw, and surrounding structures.
- ❖ CBCT (Cone-Beam Computed Tomography): A 3D x-ray that captures detailed images of a tooth and the surrounding structures. This advanced technology is particularly useful for planning dental implants, diagnosing infections, fractures, pathology, and identifying potential root canal issues. It has become a routine part of comprehensive dental exams.

How Often Should You Have Dental X-rays:

The frequency of dental x-rays depends on your dentist's evaluation of your individual risk factors. Patients with low risk and a history of infrequent cavities may only need screening radiographs every 24 to 36 months. However, those with higher risks may benefit from x-rays every 6 to 18 months. Full-mouth or panoramic x-rays are generally recommended every 3 to 5 years, depending on your specific needs and risk factors.

It's important to remember that dental x-rays are extremely safe and play a critical role in maintaining your oral health. If your dentist recommends x-rays, it's in your best interest to approve them for your care. Please flip this sheet over to learn more about other sources of radiation in our daily lives.

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5363 Balboa Boulevard • Suite 528A • Encino, California 91316

Website: <https://valleyendoencino.com>

Phone: 747-208-8668 • Fax: 818-788-1288



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Dental X-Ray Exposure and Radiation in Our Everyday Lives

Dental x-rays expose you to only a tiny fraction of the radiation we encounter daily in our naturally radioactive world. The biological risk from radiation is typically measured in sieverts, and for clarity, we've converted the radiation doses discussed below into microsieverts (μSv) to highlight how low the exposure from dental x-rays really is.

Let's explore some common sources of radiation we encounter simply by living on Earth.

Sources of Radiation Exposure

❖ **Annual average radiation dose from all natural and man-made sources: 6,200 μSv**

Our bodies are naturally radioactive due to the food we eat, the water we drink, and the air we breathe. Many everyday foods contain small amounts of naturally occurring radioactive materials, such as bananas, carrots, potatoes, peanut butter, beer, and red meat.

❖ **Radiation from food and water: 300-400 μSv per year**

❖ **Mammogram screening: 270 μSv**

❖ **Cosmic radiation (from outer space): 260 μSv per year at sea level on the Pacific Coast**

❖ **Terrestrial radiation (from the ground): 230 μSv per year on the Pacific Coast**

❖ **Radiation from the air we breathe: 228 μSv per year**

❖ **One dental full-mouth CBCT scan: 100 μSv (a limited CBCT scan: 50 μSv)**

❖ **Living in a stone, brick, or concrete building: 70 μSv per year**

❖ **Flight from Los Angeles to New York City: 40 μSv**

❖ **One dental panoramic scan: 4 μSv**

❖ **One dental digital x-ray: 1 μSv**

Additionally, we encounter radiation from everyday life, including:

❖ Television sets, smoke alarms, airport screenings, and cell phones

❖ Exposure to the sun or even lying next to someone (as our bodies emit radiation)

Dental X-Ray Radiation Doses

As you can see, dental x-rays expose you to an extremely small amount of radiation compared to the many sources we are regularly exposed to in our daily lives.

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