

Dental X-rays - Inspecting Beyond the Veneer

Dental radiographs more commonly referred to as X-rays are necessary for evaluating your oral health. A lot is going on beneath the surface of the teeth and gums, all jammed into the small space of the mouth. Dental X-rays allow dentists to see all the nooks and crannies in between teeth, places hidden from view. They reveal the root structure of each tooth and jaw and mouth bones, which is important for early detection of oral health concerns.

What are Dental X-rays

X-rays technically referred to as radiographs take an image of the inside of the body. Light from the sun brightens our day, bounces off, thick objects, showing them up. Where objects are thinner, the light penetrates, showing what's underneath, and shadows form where there is less light. Some of the energy (gamma radiation) from the sun is invisible, but that form of energy has been scientifically created and harnessed safely to see what's inside the body in a similar way to visible light described above.



What can X-rays detect

Tooth decay and gum disease can sometimes be hard to detect early. On the surface, your teeth and gums may seem healthy but between teeth, or deep in the roots, an infection or decay could be present. X-rays are an excellent tool for seeking beneath the surface for early detection of tooth decay . X-rays also help identify bone loss around teeth. This allows dentists to implement timely treatments, reducing the risks or impact of existing and potential oral health concerns. X-rays will detect:

- Tooth decay
- Location of teeth in relation to other facial structures like bone, nerves, muscle and sinew.
- Problems with existing dental treatments are. filling's, crowns, and bridges or root canals.
- Abscesses, tumors, cysts
- Stages of tooth development and potential issues as we grow
- Any structural malformation like missing teeth, jaw, and tooth alignment.
- Assist in the planning of specific dental treatments like root canals, braces, extraction or implants, and many other dental procedures.



Types of Dental X-rays

Bitewing X-ray

The most common type of dental X-ray used, a bitewing, captures the surfaces between upper and lower teeth simultaneously, beneath the outer layer of enamel and the bone structure around each tooth. These are done on a regular basis.

Periapical X-ray

Another common radiograph technique used by dentists, periapical X-rays capture the whole tooth, or groups of teeth - roots, and its surrounding structure.

Lateral Cephalometric X-ray

Lateral cephalometric radiographs are regularly used in unison with panoramic x-rays for planning orthodontic treatments and assessing conditions as stated above.

Cone Beam Computerised Tomography - (BCT)

Cone Beam computerised tomographs (CBCT) create three-dimensional images of the teeth and surrounding facial structure. Less commonly used for planning more complex procedures.

Panoramic X-ray (Orthopantomogram - OPG)

Orthopantomograms commonly referred to as OPG or full mouth x-rays are radiographs that capture a view of the entire mouth, including the temporomandibular (TMJ) jaw joints, maxillary sinuses, eye sockets, and the bones of the upper (maxillary) and lower (mandibular) jaw structure. OPG's detect and assess the following:

- Infections, tumors, or cysts.
- Gum disease
- Tooth development in children
- Wisdom teeth positioning and development
- Proximity and positioning of teeth compared to sinuses nerves and other facial structures.
- Planning for dental procedures.

How Often Should X-rays be Taken

The necessity for x-rays will be unique and change with each individual and the state of their oral health and lifestyle choices. Dentists will take x-rays with new patients if they do not have access to previous records to establish a benchmark. As children age, to monitor changes in the jaw and facial structure and the growth of adult and wisdom teeth. Regular x-rays are necessary for monitoring and assessing potential infections and gum disease. Depending on the health of each individual x-rays may be done more frequently, your dentist will determine the best routine.

Safe X-rays

The levels of radiation emitted from dental x-rays are quite low and safe for the human body. In comparison, it is equivalent to the radiation exposure of a short plane flight. Visit ARPANSA for more information on radiation safety.

Why Does the Dentist and Nurse Leave the Room

At low levels, being exposed to the amount of radiation from common dental x-rays is quite safe; however, dentists and dental nurses repeat dozens of x-rays on patients each day. This is purely a preventive measure to reduce ongoing radiation exposure.

X-rays and Pregnancy

It is important to inform the dentist if you are pregnant. Pregnancy can affect the state of your oral health as your lifestyle choices change naturally through the gestation period. Whilst kept to a minimum, Dental x-rays can be taken safely during pregnancy. Your dentist will likely employ extra safety measures like using a lead blanket over the abdomen.

Exposure Levels of Radiation

The below chart compares levels of radiation exposure between dental X-rays and other everyday sources of exposure.

	Living Everyday Life	4 microsieverts
	Dental X-ray	10 or less microsieverts
	Flight - approx 4 hrs	16 microsieverts
	Medical Chest X-ray	20 microsieverts
	Flight - approx 20 hrs	42 microsieverts
	Dental CBCT Scan	less than 80 microsieverts
	Average Annual Background Radiation in Australia	1500 microsieverts
	Medical Chest CT Scan	7000 microsieverts