

Digital vs. Film Dental X-Rays: What the Switch Means for Patients

By Joy of Dentistry Health Desk · 6 min read

For decades, a dental X-ray meant a small film packet tucked against your cheek, a pause while it was developed in a darkroom, and a doctor holding a greyish square up to a light box. Most practices in Canada have moved on from that. If your recent X-rays appeared on a screen within seconds, you have already met digital radiography — and the switch changed a few things that are genuinely relevant to patients, not just to the office.

What actually changed

The physics of taking the image is broadly similar: a controlled burst of X-rays passes through the jaw and is captured on the far side. What changed is the capture medium. Film relied on a chemical reaction and darkroom processing. Digital systems use an electronic sensor or a reusable plate that is read by a scanner, sending the image straight to a computer.

From there the differences cascade: the image appears almost immediately, it can be enlarged and adjusted on screen, and it can be stored and shared electronically rather than filed in an envelope.

Radiation dose: lower, and worth understanding properly

This is usually the first question patients ask, and it deserves an accurate answer rather than a reassuring slogan.

Digital sensors are generally more sensitive to X-rays than traditional film, which means a diagnostic image can often be captured with a smaller exposure. The U.S. Food and Drug Administration notes that digital imaging may use less radiation than film-based systems. The practical takeaway is that the move to digital tends to reduce dose compared with older film, though the exact amount depends on the equipment and the type of X-ray.

It is also worth keeping dental X-rays in proportion. Individual dental radiographs deliver a low dose relative to many other sources of radiation we encounter, including the natural background radiation everyone is exposed to over the course of a year. That does not make dose irrelevant — it means the goal is to use X-rays only when the information is needed.

The principle behind "only when needed"

Dentists are guided by ALARA — As Low As Reasonably Achievable. In plain terms, that means using the lowest exposure that still produces a useful image, and not taking X-rays on a fixed schedule for its own sake. How often you need them depends on your age, your risk of dental disease, and what the dentist is trying to find or monitor. This is one reason your dentist tailors imaging to you rather than applying a one-size timetable; routine [dental exams and X-rays](#) are planned around individual need and history, not a calendar.

Image quality and what the dentist can do with it

Beyond dose, digital images give the clinician tools that film could not. On screen, an image can be magnified, brightened, or contrast-adjusted to examine a suspicious area more closely, without retaking the X-ray. Some systems apply measurement and comparison features that help track change over time.

This does not automatically mean a diagnosis is more accurate — a clear film read by an experienced eye has always been valuable. But the flexibility of a digital image can make certain details easier to study, and it removes the variability of chemical developing, where a poorly processed film sometimes had to be retaken (and the exposure repeated).

What it feels like from the chair

For you, the day-to-day experience improves in modest but real ways:

- **Speed.** Images appear in seconds, so there is less waiting and fewer repeat visits caused by a film that didn't develop well.
- **Sharing.** If you change clinics or see a specialist, digital files can usually be transferred electronically rather than physically.
- **Seeing your own images.** Because the X-ray is on a screen, many dentists show it to you and point out what they are looking at, which can make the whole thing less mysterious.
- **Comfort.** Sensor shapes and sizes vary, and some patients find them no more comfortable than film packets — this part isn't a universal win, and it's fair to say so if a sensor is uncomfortable.

Does digital mean X-rays are now completely without consideration?

No — and anyone promising "zero" would be overstating it. Digital radiography lowers dose compared with older film and adds useful tools, but it still involves ionising radiation, which is why the ALARA principle and clinical judgement still apply. The sensible position for a patient is not to fear a needed X-ray, nor to assume more is always better, but to understand that each image should have a reason. If you are ever unsure why an X-ray is being taken, it is entirely reasonable to ask.

Frequently asked questions

Are digital X-rays lower radiation than film?

Generally, yes. Digital sensors are usually more sensitive than film, so a diagnostic image can often be captured with less exposure, and regulators including the FDA note that digital systems may use less radiation than film. The exact reduction depends on the equipment and the type of X-ray.

Why did dentists switch from film to digital?

Several reasons at once: images appear almost instantly, they can be adjusted and magnified on screen, they are easy to store and share electronically, there is no chemical developing, and dose is often lower. Together these make digital practical for both patient and office.

How often should I have dental X-rays?

There is no single schedule for everyone. Frequency depends on your age, your risk of dental problems, and what your dentist needs to assess, which is why imaging is tailored to the individual following an examination rather than taken on a fixed timetable.

Sources & further reading

- [U.S. Food and Drug Administration — Dental Imaging](#) — notes that digital imaging may use less radiation than film-based systems.
- [Health Canada — Safety Code 30](#) — recommended radiation-protection procedures for dental X-ray equipment, including ALARA.
- [Canadian Dental Association — Your Oral Health](#) — general patient information on dental care and diagnostics.