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## DENTAL X-RAYS & TECHNOLOGY IS IT BETTER?

### *Part III of III*

Digital vs Film? Most dentists are switching over to digital sensors mainly due to reduced exposure to radiation. Why is this? Well, digital sensors are more sensitive than older film (although F speed film uses the same dosage as digital sensors) and capture the same amount of information to be diagnostic for a dentist at lower radiation. Equally important is the reduction of chemicals used (i.e. fixer and developer needed) and reduced waiting time allowing dental professionals see things immediately on the computer screen. There is also the poor cousin of the digital sensor called SCANx, which is made out of a reusable x-ray plate like a film but this plate is not immediately scanned onto the computer screen. This intermediary step has no benefit over traditional film nor a reduction of waiting time with more exposure to radiation than true digital sensors and is just a cheap way to enter the “digital world”.

The most accurate extraoral film today is the dental CBCT (cone beam computed tomogram). This is a completely different machine than the previous dental x-ray machines discussed. The dental CBCT functions similar to a medical CT scan with 1000 times less radiation. The advantage over normal x-rays is that it provides no distortion to the image and captures three dimensions not just two. It also uses a computerized software to stitch together the image slices unlike a medical CT scanner thus reducing the radiation exposure.

Recently, CBCT has become increasingly available for use in dental offices, mainly surgical specialty offices such as periodontists, endodontists, oral surgeons or orthodontists. CBCT is only to be used when a diagnosis is not available through traditional x-rays due to the slight increase dosage overall for the patient. Unfortunately we are seeing more and more inappropriate usage as a novelty effect for new clinicians to “pay for the machine”. And of course, never forget that a good clinical exam can never be replaced!

The CBCT results in a virtual three-dimensional (3D) representation of the patient. Only some models can limit the field of view to 3 to 4 teeth, otherwise most have only the capability of scanning the whole mouth. This virtual image contains diagnostically important information that is not possible to see in other dental images (i.e. nerve position, extra root canals etc.). However, taking a CBCT image results in a slightly higher radiation dose and must be seriously taken into account depending on the information sought by the dentist.

Thus all in all... X-rays today are safe compared to technology and usage in the past. The patient must not be afraid of the unknown by lack of information or biases. But yet - you are your own advocate and if in doubt of anything in the dental office, you must only ASK and your dentist will explain things.



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