



# RADIOGRAPHY TERMS TO KNOW

SELF STUDY – DENTALELLE TUTORING



## PLEASE NOTE


- You **DO NOT** need to study these for the board exam if this is why you bought our Radiography course, however if you come across any terms in your textbook or notes that you do not know you can look them up here.



- **absorption** – Transfer of some or all of x-ray photon energy to material or matter; dependent on the energy of the x-ray beam and composition of the absorber.
- **ALARA** – Safety principle that states that radiation exposure should be kept to a minimum or *as low as reasonably achievable*.
- **algorithm** – Computer-adapted mathematical calculation applied to raw data during image reconstruction.
- **analog data** – Data characterized by a continuous grayscale from black to white.
- **analog to digital converter (ADC)** – Device that converts the analog output signal into numeric data based on the binary number system of 0 and 1; the voltage of the output signal is measured and assigned a number from 0 (black) to 255 (white) according to the intensity of the voltage.
- **area array** – Matrix or layout of pixels in columns and rows; format for intraoral direct digital receptors.
- **back up** – Copying files from the hard drive to another medium, such as compact disks, to store files and use in the event that data is lost.
- **binary number system** – Computer language in which two digits, 0 and 1, are used to represent information.
- **bit** – Binary digit, smallest unit of information that a computer is able to recognize and represent in the form of 0 or 1.
- **brightness** – Digital equivalent to density or overall degree of image darkening.
- **bytes** – Group of eight bits that represents one character or digit; the number of possible bytes in computer language is  $2^8$  or 256.

- **cephalometric radiography** – Extraoral images of the skull accomplished by use of a head positioning device or cephalostat, typically 8" x 10" projections; the lateral head plate is a common view used in orthodontic evaluation.
- **charge coupled device (CCD)** – Solid-state, silicon chip detector that converts light or x-ray photons to electrons.
- **collimation** – Device used to restrict the size and shape of the x-ray beam.
- **complimentary metal oxide sensor (CMOS)** – Solid-state detector similar to the CCD with built-in control functions, smaller pixel size and lower power requirements.
- **complimentary metal oxide sensor active pixel sensor (CMOS-APS)** – CMOS detector with active amplifying transistors integrated in each pixel to decrease noise and improve signal output.
- **contrast** – The difference in densities between various areas on a radiographic image; high contrast images have few shades of gray between black and white while low contrast images will demonstrate more grays.
- **contrast resolution** – The ability to differentiate small changes in density as displayed on an image.
- **data compression** – Method of storing data in a way that requires less space or memory.
- **density** – Overall degree of blackness or image darkening of an exposed film; comparable to brightness in digital imaging.

- **DICOM (Digital Imaging and Communications in Medicine)** – Standard with detailed specifications that describes a method of formatting and exchanging digital images and related information; standard applies to the operation of the interface used to transfer data in and out of an imaging device.
- **digital image** – A video image in pixel format that can be stored in the computer memory for processing.
- **digitization** – Conversion of an incoming analog signal into a digital or numeric value for storage and processing.
- **direct sensor** – Receives radiation directly like film and deposits the energy in the electron wells or picture elements.
- **distance and position rule** – Radiation safety rule in which the operator stands 6' from source of x-rays and positioned between 90° - 135° angle to the primary beam to minimize occupational exposure.
- **dpi (dots per inch)** – Method of measuring the density output of scanners and printers; the greater the dpi, the better the resolution of the printed image.
- **dynamic range** – The numerical range of each pixel; in visual terms it refers to the number of shades of gray that can be represented.
- **edge** – Borders between regions of an object.
- **electron well** – Individual pixel into which x-ray or light energy is deposited during x-ray exposure of CCD or CMOS detectors.
- **fiber optics** – Thin transparent fibers of glass or plastic material that transmit light throughout their length by internal reflection.
- **filtering** – Analog or digital image processing used to enhance or modify an image.
- **focal spot** – Anode tungsten target where x-rays are generated; focal spot size should be as small as possible in the range of .5 to 1.5 mm<sup>2</sup>; the size has an influence on image quality in terms of sharpness and geometric distortion.

- **gigabyte (GB)** – Unit of computer storage equivalent to a billion bytes.
- **gray level** – Measure of image brightness or intensity in a range between black and white.
- **hard drive** – Hardware that contains the hard disk or storage disk inside the computer.
- **hardware** – The physical parts or components of the computer system.
- **histogram** – Graphic representation of the frequency of each gray value that appears in the image.
- **histogram equalization** – Modification of the histogram to evenly distribute a narrow range of gray levels across the entire available range.
- **image processing** – An operation used to improve, correct, analyze or alter an image.
- **image enhancement** – Image processing operations that alter the visual appearance of the image; typical enhancement tools include density, contrast, colorization, and various filters.
- **image matrix** – The layout of cells in rows and columns with each cell corresponding to a specific location and representing the brightness or intensity in that location.
- **indirect sensor** – Receptor that receives x-rays upon exposure and stores the energy until released via a scanning process.
- **intensity** – The relative brightness of part of an image.
- **kilovoltage (kV)** – Potential difference between the anode and cathode in an x-ray tube; it controls the quality or penetrating power of the x-ray beam.

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- **photon** – Electromagnetic radiation in the form of x-rays and gamma rays that interact with matter like a particle or small bundle of energy rather than a wave.
  - **photostimulable phosphor plate (PSP)** – Polyester base coated with a crystalline halide emulsion; the plate converts x-ray energy into stored energy that is released when scanned with a helium-neon laser beam.
  - **photostimulation** – Emission of visible light after excitation by a laser light beam.
  - **photomultiplier tube** – Electron tube that converts visible light into an electrical signal.
  - **pixel** – Picture element; individual cell of the image matrix in which the value of cell determines brightness.
  - **primary barrier** – Protective barrier adequate to absorb the primary or useful beam.

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- **subtraction** – Computer processing technique that subtracts information from pre- and post-radiographic images by removing all unnecessary structures and enhancing areas of interest or change.
  - **teleradiography** – The process of remote transmission and viewing of digital images.
  - **template** – A pattern or format used to create a document or file that is similar but may have some small differences.
  - **USB (universal serial bus)** – Hardware bus standard that permits the user to plug a peripheral into a USB port and have it automatically configured for use.
  - **workstation** – Desktop computer system often connected to larger computer systems to allow users to transfer and share information.
  - **x-rays** – A form of electromagnetic radiation with wavelengths shorter than visible light with abilities to penetrate, ionize and produce a latent image.



# OTHER TERMS

- **alveolar crest** – Highest part of the alveolar bone.
- **alveolar ridge** – Part of the bone that contains the tooth sockets.
- **anterior** – in front
- **apices** – Plural for apex or tip of root.
- **bisector** – A straight line that bisects an angle.
- **buccal** – Towards the cheek.
- **calculi** – Plural of calculus; a hard rough deposit on the tooth surface.
- **digit** – finger or toe
- **distal** – Tooth surface away from the midline.
- **edentulous** – Without teeth.
- **foramina** – Plural for foramen; an opening.
- **horizontal** – Line extending from side to side.
- **impacted** – Trapped below the surface as in an impacted third molar.
- **incisal edge** – Biting surface of front teeth.
- **interproximal** – Between the teeth.
- **intraoral** – Inside the oral cavity.
- **lingually** – Towards the tongue.
- **long axis** – Imaginary plane that vertically divides the tooth into two equal halves.
- **mandible** – lower jaw

- **mandibular ramus** – Portion of the mandible that extends back and up.
- **maxilla** – upper jaw
- **mesial** – Tooth surface towards the midline.
- **occlusal** – Biting surface of back teeth.
- **palatal** – Pertaining to the roof of the mouth.
- **parallel** – Extending in the same direction and same distance apart; never intersecting.
- **periapical** – Surrounding the apex or tip of the tooth.
- **periodontal** – Surrounding the tooth.
- **periodontal disease** – Disease of the gums and supporting areas of the teeth.
- **perpendicular** – Intersecting at a right angle.
- **posteriorly** – behind
- **sagittal plane** – Vertical plane dividing the body.
- **supernumerary teeth** – extra teeth
- **tori** – Hard bony projections.
- **vertical** – Line extending from top to bottom (up and down).
- **XCP** – Extended cone paralleling; type of radiographic image holder.