

Physical principle of imaging with X-rays

Is an electromagnetic radiation of short wavelength produced when high-speed electrons strike a solid target.

X-ray imaging physics

X-ray imaging begins with a beam of high energy electrons crashing into a metal target and x-rays are produced. A filter near the x-ray source blocks these low energy rays, which means only the high energy rays pass through a patient toward a sheet of photographic film. X-ray can penetrate liquids, gas and solids. The point of penetration is based on the intensity, quality and wavelength of the X-ray beams. The stronger the beam of X-ray the more it will material it can penetrate, and vise versa. These electromagnetic radiations or X-ray work on the absorption of low level radiation by parts of our body with higher density, making the radiation not absorbed hit the photographic 'plate' to form a 'negative image'. This means the waves of X-ray can penetrate through materials of light atoms, such as flesh that is why flesh is not seen during imaging with X-rays. Bones, which are heavier atoms than flesh (due to the calcium in them), absorb the X-rays. The absorbed X-rays by the bones then glow on the photographic film. Meaning the higher the density of the material the brighter it will be imaged on the photographic film.

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Bibliography

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