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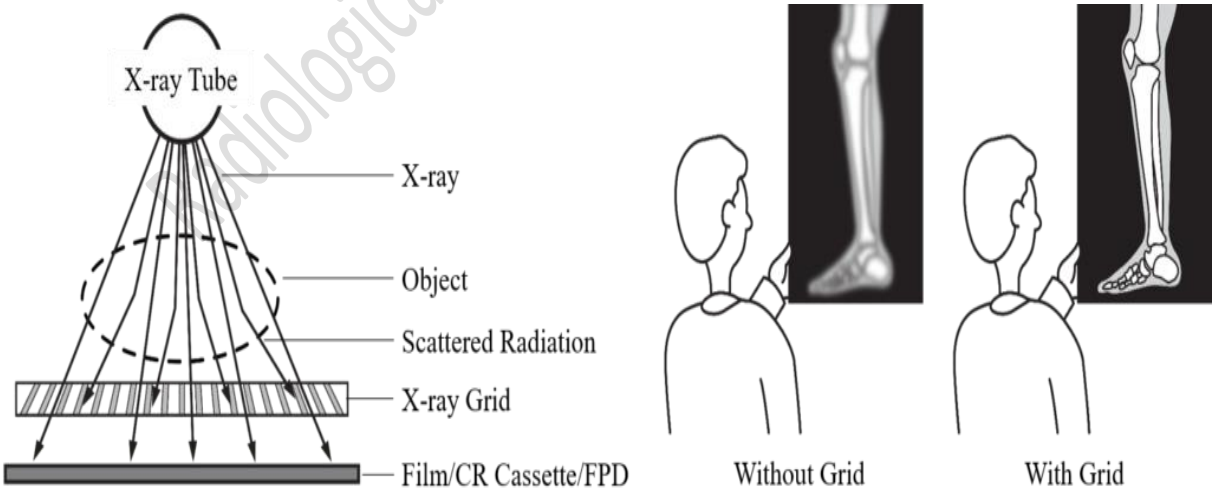
The Grid

The performance of a film/screen imaging system is a function of many variables, such as geometry, kVp, patient size, and amount of scatter produced. Scatter radiation is probably the biggest single factor contributing to decreased film qualit , It is the result of a redirection of the primary x-ray beam and production of new x-rays following the interaction with the patient.

Therefore, scatter radiation is present in each radiographic examination. The effect of scatter radiation is to produce a generalized photographic fog on the film which reduces the contrast between adjacent areas on the radiograph.

The grid : is a device used to prevent as much scattered radiation as possible from reaching an x- ray film during the exposure of a radiograph, it is a flat plate with a series of lead foil strips that is made in various sizes and is used to improve the diagnostic quality of radiographs by absorbing the greater part of the scatter radiation (Fig.1). It is positioned between patient and film.



(Fig.1) : showing the location and work of the grid.

The grid is designed to transmit only those x –rays whose direction is on a straight line from the source to the image receptor. X- rays that travel obliquely (at an angle) are absorbed in the grid material. Primary–beam photons incident on the interspace material are transmitted through to the films.

Scatter Removal Grids:

The antiscatter grid plays an important role for enhancing image quality in projection radiography by transmitting a majority of primary radiation and selectively rejecting scattered radiation. This device is comprised of a series of thin lead strips separated by radiolucent interspaces in a form-factor that matches the detector size. Most grids have a linear geometry in one direction (usually along the long axis of the detector). Parallel grids have lead strips that are focused to infinity (i.e. the primary x-rays have a parallel trajectory). Focused grids have lead strips that are oriented parallel at the center (along the x-ray central axis) and progressively slanted to the periphery to match the beam divergence from the focal spot .to the detector at a specific source to detector distance.