

**EXTRA ORAL RADIOGRAPHY**

**POSTERO ANTERIOR VIEW OF SKULL**

**Head position**

- Centered in front of the cassette with the cantho meatal line parallel to the floor
- Cantho meatal line is 10 degree above the horizontal line and the Frankfort plane is perpendicular to the plane.
- FP - The cassette is placed vertically in a holding device
- kVp of 70, the mAs should be about 30 to 50

**Projection of central ray**

- Passes in a posterior to anterior direction perpendicular to the plane of the film



**Important features**

- Used to examine skull for disease, trauma and sinuses
- Best for viewing coronoid process
- PA view with 10° tilt is called Caldwell projection, (medially displaced fracture of condyle)

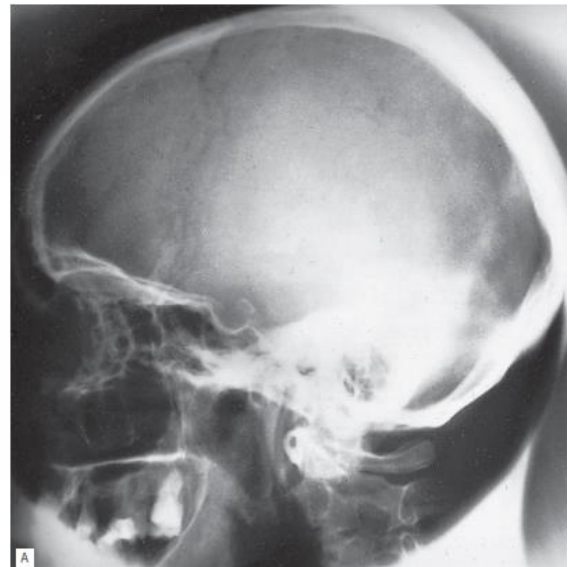
**LATERAL SKULL OR CEPHALOMETRIC VIEW**

**Head position**

- The left side of the face should be positioned near the cassette and the mid sagittal plane should be parallel with the plane of the film
- The cassette is placed vertically in a holding device kVp of 70 the mAs should be about 15 to 25

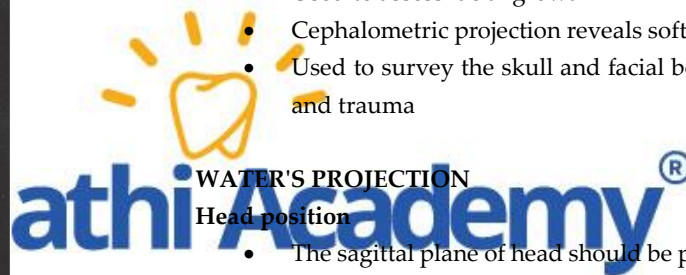
**Projection of central ray**

- Directed towards the external auditory meatus perpendicular to the plane of the film and mid sagittal plane



**Important features**

- Used to assess facial growth
- Cephalometric projection reveals soft tissue profile
- Used to survey the skull and facial bones for disease and trauma



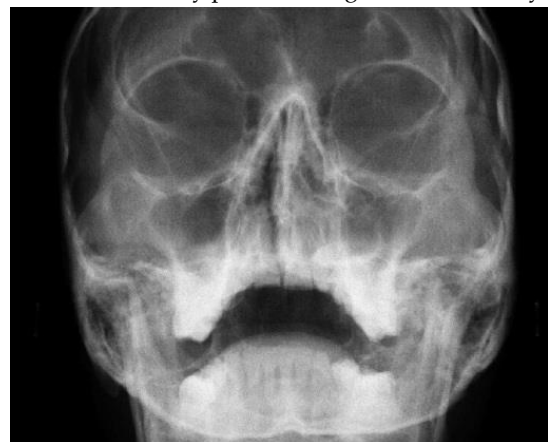
**WATER'S PROJECTION**

**Head position**

- The sagittal plane of head should be perpendicular to the plane of the film.
- The chin is raised such that canthomeatal line is 37° above horizontal

**Projection of central ray**

- The central ray passes through the maxillary sinus.



**Important features**

- It is also called as *Occipito-mental projection*, which is the variation of PA view
- Best view for demonstrating zygoma fractures, paranasal sinuses and nasal cavity, middle third of fractures
- It demonstrates the position of coronoid process between maxilla and zygomatic arch

#### SUBMENTO VERTEX

- Patient's head and neck should be extended backward such that the vertex of the skull is on the centre of the cassette. (So this projection is contraindicated in patients with cervical spondylitis)
- Central ray is directed towards the vertex of the skull



- Also called as *Base or Full Axial or Jug Handle View*
- Best for viewing base of the skull and fracture of the zygomatic arch



Submentovertex projection of the zygomatic arches.

- For viewing zygomatic arches the exposure time is reduced to one third than that used to visualize the skull
- Frankfort plane is vertically oriented and parallel to the film

#### REVERSE TOWNE'S VIEW

- The cantho meatal line is oriented 25-30° downward
- The central ray is directed towards the occipital bone
- Best for viewing *condylar neck fractures*
- The condyles are better viewed if the patient opens the mouth widely
- The cassette is placed vertically in a holding device
- kVp of 70, the mAs should be about 100

#### LATERAL OBLIQUE MANDIBULAR BODY PROJECTION

- Head is tilted towards the side being examined and the mandible is protruded
- Directed towards the first molar region
- The cassette is placed against the patient's cheek and centered over the first molar. Its lower border parallel with the inferior border of the mandible and extending at least 2 cm below it
- 65 kVp, 10 mA, and about 1/4 seconds for medium speed screen films
- Demonstrates premolar-molar region
- Best for viewing the inferior border of the mandible



#### LATERAL OBLIQUE MANDIBULAR RAMUS PROJECTION (DISTAL OBLIQUE)

- Head is tilted towards the side being examined and the mandible is protruded
- Central ray is directed posteriorly towards the centre of the ramus
- The cassette is placed over the ramus far enough posteriorly to include the condyle. The lower border of the cassette should be approximately parallel with

the inferior border of mandible and should extend at least 2 cm below the border

- 65 kVp, 10 mA and about 14 Seconds for medium - speed screen films
- Used often for examining third molar regions of the maxilla and mandible
- Gives view of the ramus from the angle to the condyle

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## TMJ PROJECTIONS TRANSPHARYNGEAL / PARMA/INFRACRANIAL / MCQUEEN PROJECTION

- The central ray is directed through the sigmoid notch of mandible
- Diagnosing fractures of the condyle and neck
- Visualizing erosive changes of the condyle, mesial side

## TRANS ORBITAL / TRANS MAXILLARY / ZIMMER PROJECTION

- The central ray is perpendicular to the long axis of condyle
- The main contribution of convex articulating surface of condyle and the slightly concave broad ridge of the articular eminence, made this projection a useful adjunct to transcranial and transpharyngeal projections in the diagnosis of gross degenerative changes or other anomalies

## TRANSCRANIAL PROJECTION

- Useful for identifying gross osseous changes on lateral aspect of the joint
- Displaced condylar fractures and range of motion