Extra oral examinations are those in which both the source & image receptor are placed outside the patient’s mouth.
INDICATIONS OF EXTRA ORAL RADIOGRAPHY

- Not possible to place film inside mouth as in trismus.
- To examine the extent of large lesions.
- When jaws or other facial bones are to be examined for evidence of disease lesions and other pathological conditions.
- Evaluate skeletal growth & development.
- Evaluate status of impacted teeth.
- Evaluate trauma.
- Evaluate TMJ area.
Magnification occurs due to the greater object to film distance.

Details are not well defined due to the use of cassettes & intensifying screens.

Contrast is reduced as the secondary radiation produced by soft tissues is more.
1. **(MIDSAGITTAL PLANE):** a line coincidental with sagittal suture. Lateral views → parallel to cassette

P.A. or A.P. view → rt. Angle to cassette

2. **INFRA ORBITAL LINE:** from one infra orbital margin to other. True lateral → rt. Angle to film.

3. **CANTHOMEATAL LINE:** outer canthus of eye to tragus of ear.

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4. **FRANKFORT'S HORIZONTAL LINE**: most inferior portion of the infraorbital margin of orbit to the highest pt. on the superior surface of the external auditory meatus.

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EXTRAORAL RADIOGRAPHY OF VARIOUS MAXILLO-FACIAL REGIONS

- Radiography of maxillary sinus/ PNS
- Radiography of mandible
- Radiography of base of the skull
- Radiography of the zygomatic arches
- Radiography of the TMJ
- Radiography of the skull

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RADIOGRAPHY OF MAXILLARY SINUSES

- $0^\circ$ OM
- $30^\circ$ OM
- PA waters
- Bregma Menton

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RADIOGRAPHY OF MANDIBLE

- PA Mandible
- Rotated PA Mandible
- Lateral oblique
  - Body of the mandible
  - Ramus of the mandible

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RADIOGRAPHY OF BASE OF THE SKULL

- SMV

(SUB-MENTO VERTEX)
RADIOGRAPHY OF ZYGOMATRIC ARCHES

- Jug handle view
  
  (modification of SMV)

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RADIOGRAPHY OF TMJ

- Transcranial
- Transpharyngeal (Infracranial or McQueen Dell)
- Transorbital (Zimmer Projection)
- Reverse Towne’s
RADIOGRAPHY OF THE SKULL

- Lateral cephalogram
- True lateral
- PA cephalogram
- PA skull
- Towne’s view

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<table>
<thead>
<tr>
<th>Patient placement</th>
<th>Lateral Ceph</th>
<th>SMV</th>
<th>Waters</th>
<th>PA Ceph</th>
<th>Reverse Towne</th>
<th>Oblique Lateral Body</th>
<th>Oblique Lateral Ramus</th>
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</thead>
<tbody>
<tr>
<td>Central beam</td>
<td>Beam...</td>
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<td>Beam...</td>
<td>Beam...</td>
<td>Film in contact...</td>
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<td>with cheek at...</td>
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<tr>
<td>Diagram of patient placement</td>
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<td><img src="image2" alt="Diagram" /></td>
<td><img src="image3" alt="Diagram" /></td>
<td><img src="image4" alt="Diagram" /></td>
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<td>Illustration of patient placement</td>
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<tr>
<td>Skull view</td>
<td><img src="image1" alt="Skull" /></td>
<td><img src="image2" alt="Skull" /></td>
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<tr>
<td>Resultant image</td>
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</tbody>
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Indications:
- Middle third facial fracture
- Coronoïd process fracture
- Maxillary, Ethmoidal and Frontal sinuses
Campbell's and trapnell's lines

1- First line across the zygomaticofrontal, the superior margin of the orbit and the frontal sinus
2- Second line across the zygomatic arch, zygomatic body, inferior orbital margin and nasal bone
3- Third line across the condyles, coronoid process and the maxillary sinus
4- Fourth line across the mandibular ramus, occlusal plane
5- Fifth line (trapnell's line) across the inferior border of the mandible from angle to angle
Lines of Dolan and the elephants of Rogers

1-orbital line.
2-zygomatic line.
3-maxillary line.

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Symmetry

Sinus

Soft tissue shadow

Sharpness
- 'Tripod' fracture
- 1 - The zygoma (asterisk) is separated from the frontal bone at the zygomatico-frontal suture
- 2 - Comminuted fracture of the zygomatic arch
- 3 - Orbital floor fracture
- 4 - Breach of the lateral wall of the maxillary antrum
- **Maxillary antrum fluid level**
- A fluid level of blood seen in the maxillary antrum may be the only obvious sign of fracture
- "Tripod" fracture
- A - Widened zygomatico-frontal suture
- B - Zygomatic arch fracture
- C - Orbital floor fracture
- D - Lateral maxillary antrum wall fracture
- Orbital 'blowout' fracture- Teardrop sign
- On the left a 'teardrop' of soft tissue has herniated from the orbit into the maxillary antrum
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- Body of mandible#
- Ramus of mandible#
- Condylar#
- Facial asymmetry
- Syndromes involving face
  - CCD, Crouzon

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Maxillary sinus
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THANK YOU