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Panoramic Radiography



Why the panoramic radiography

- Provides a view of entire maxillomandibular region in a single image
- Relatively undistorted anatomic images
- Reduced radiation dosage to the patient
- Simplicity of operation
- Generates revenue for the Dentist
- Shows more information than the "status" obtained with multiple intraoral exposures, using lower x-ray dose and faster procedure



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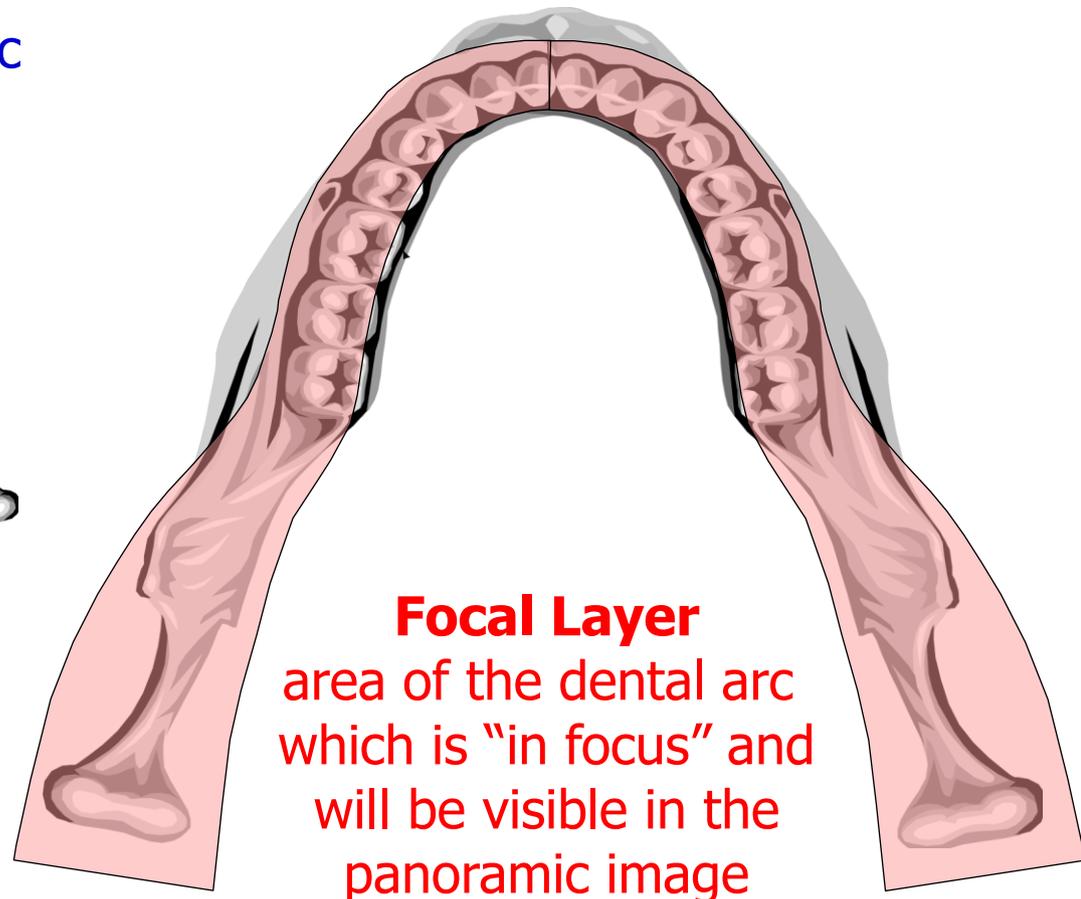
the possibilities

Panoramic Imaging Principle

Typical Mandibular arc



Resulting image



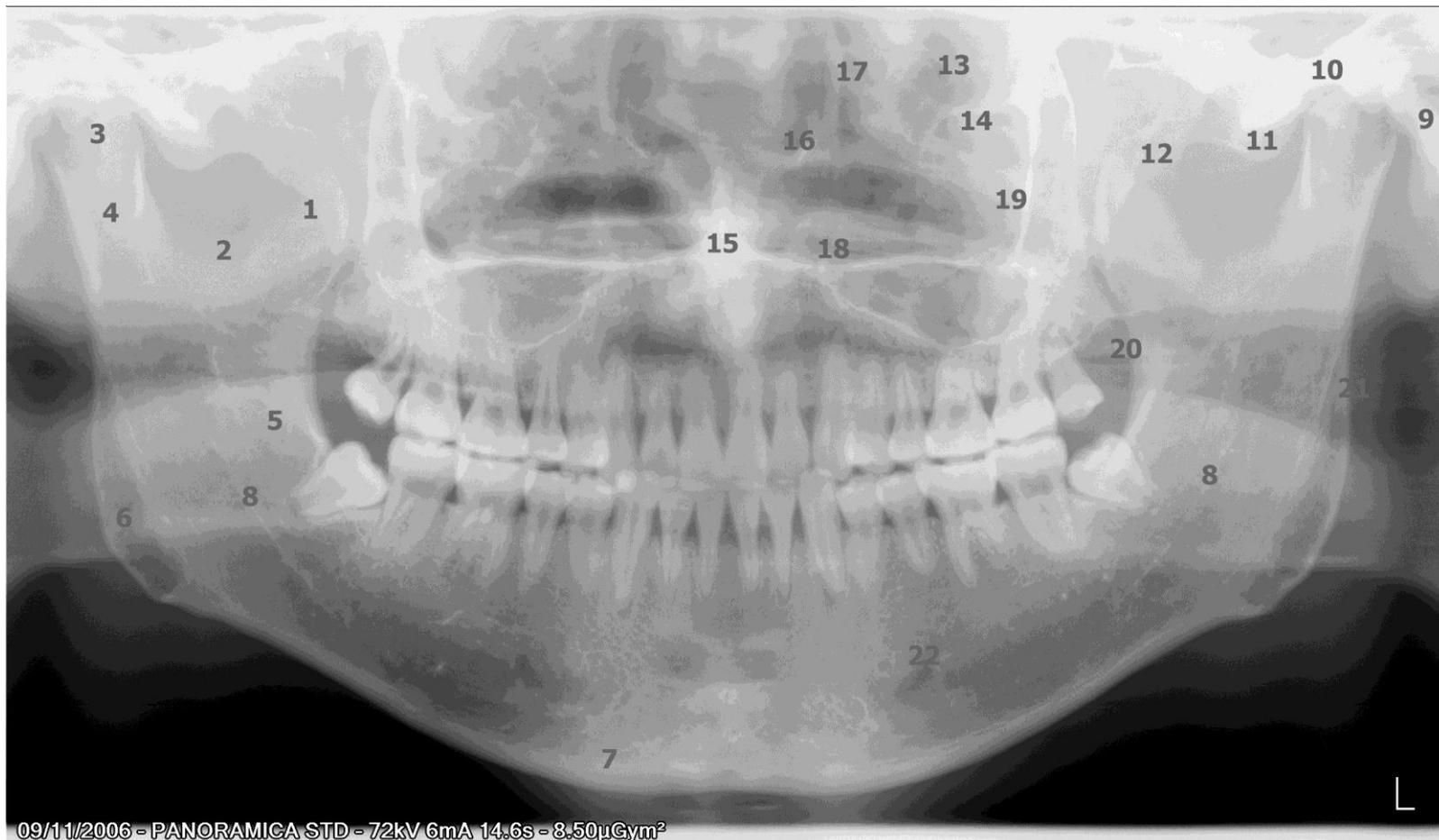


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Anatomic structures





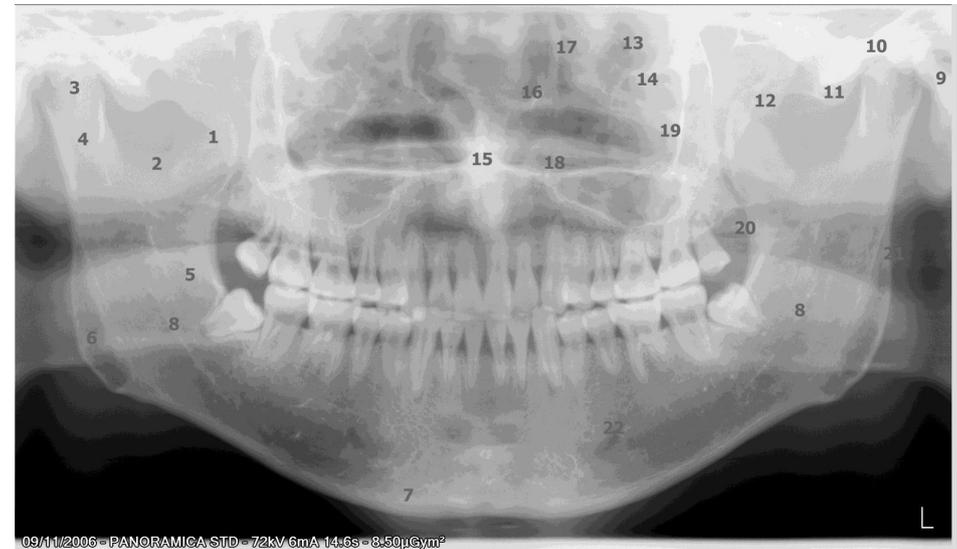
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Anatomic structures

- 1 Coronoid Process of the Mandible
- 2 Sigmoid notch
- 3 Mandibular condyle
- 4 Condyle neck
- 5 Ascending mandibular ramus
- 6 Angle of mandible
- 7 Inferior border of mandible
- 8 Mandibular canal
- 9 Acoustic external meatus
- 10 Glenoid fossa
- 11 Articular eminence





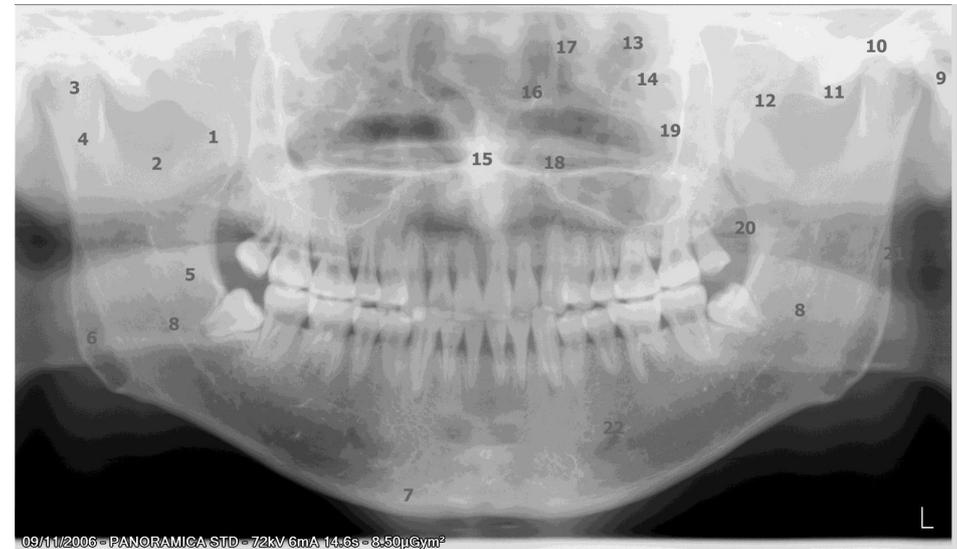
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Anatomic structures

- 12 Zygomatic arch
- 13 Orbit
- 14 Inferior lateral border of orbit
- 15 Anterior nasal spine
- 16 Inferior turbinate
- 17 Maxillary sinus Medial wall
- 18 Maxillary sinus inferior border
- 19 Maxillary sinus postero-lateral wall
- 20 Airspace between tongue and hard palate
- 21 Epiglottis
- 22 Mental foramen





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Importance of patient positioning

- Patient positioning is determining for a good panoramic result.
- Advanced systems like Strato-2000 can be sensitive to positioning errors .
- It depends on high selectivity of trajectories, which grant high quality images if the patient is correctly positioned.



Correct patient positioning

- To obtain a good diagnostic image, the patient should be correctly positioned into the machine
 - Mid sagittal plane: centered and vertical
 - Frankfurth plane (orbito meatal plane) horizontal
 - Canine centering light (laser) between 3rd and 4th teeth

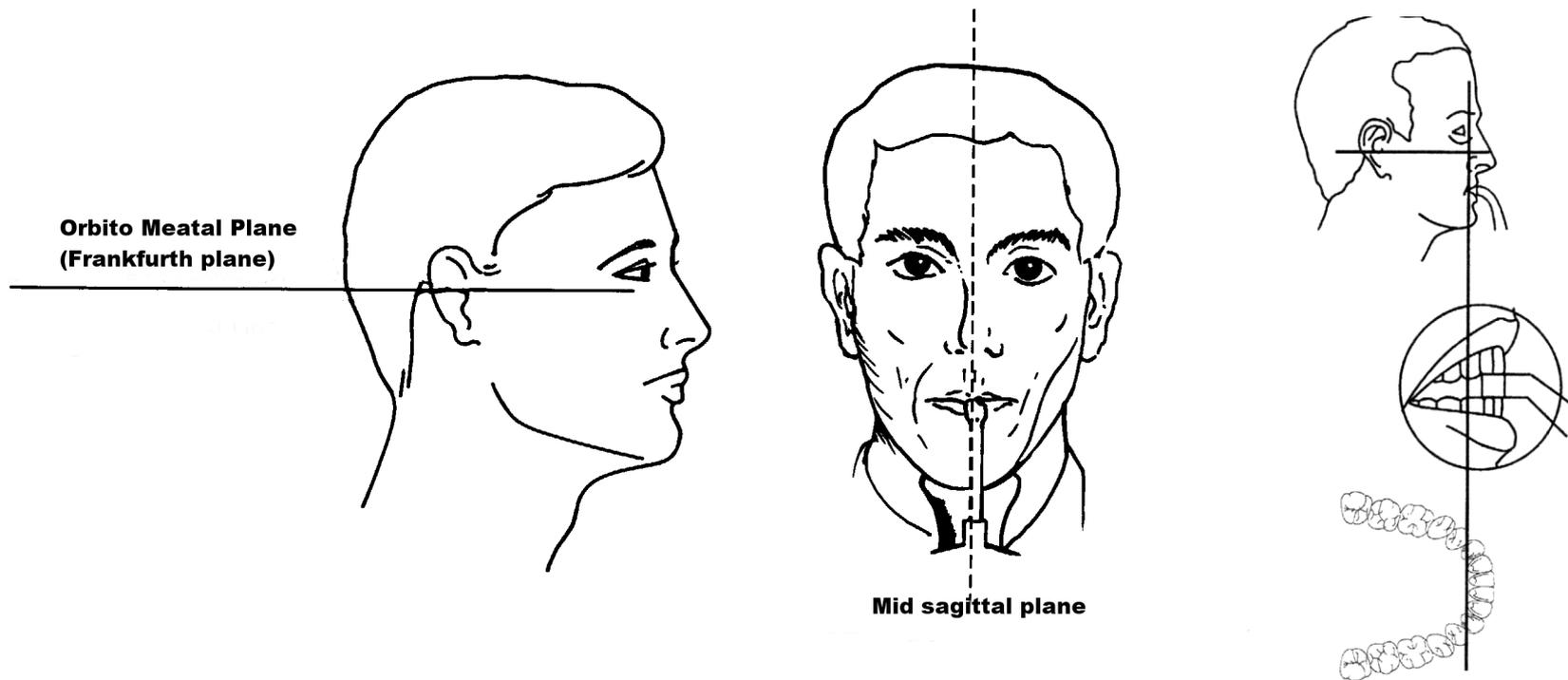


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Correct patient positioning





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Good panoramic image



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Good panoramic image

- In a good panoramic image, all anatomic structures are well represented.
- An equal magnification and sharpness of all structures can be seen.
- Ascending rami having posterior border vertical.



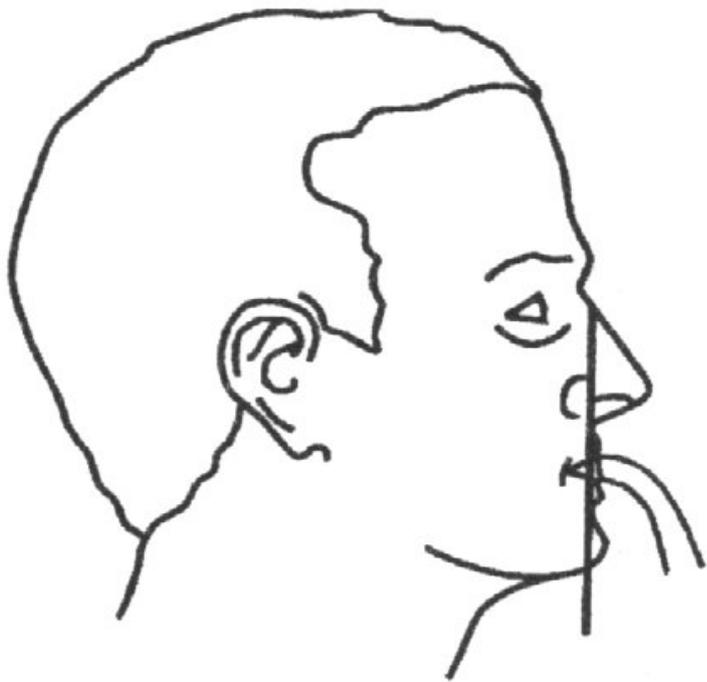
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the possibilities

Head too far forward (respect to focal layer)





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Head too far forward (respect to focal layer)



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Head too far forward (respect to focal layer)



- Anterior teeth blurred
- Reduced dimensions of scissors teeth, with normally more evidence of the spine
- Pre molars overlapped



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Head too far backward





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Head too far backward



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Head too far backward



- Anterior teeth blurred
- Enlarged dimensions of scissors teeth

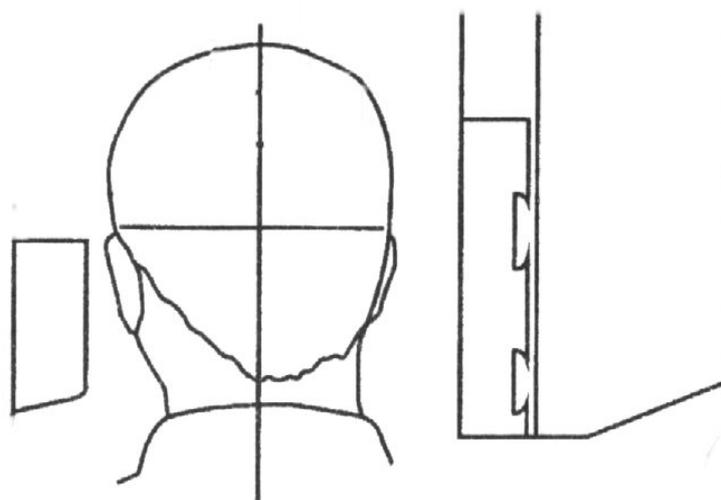


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Tilted head



- Mid sagittal plane is tilted also if it is still vertical.



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Tilted head



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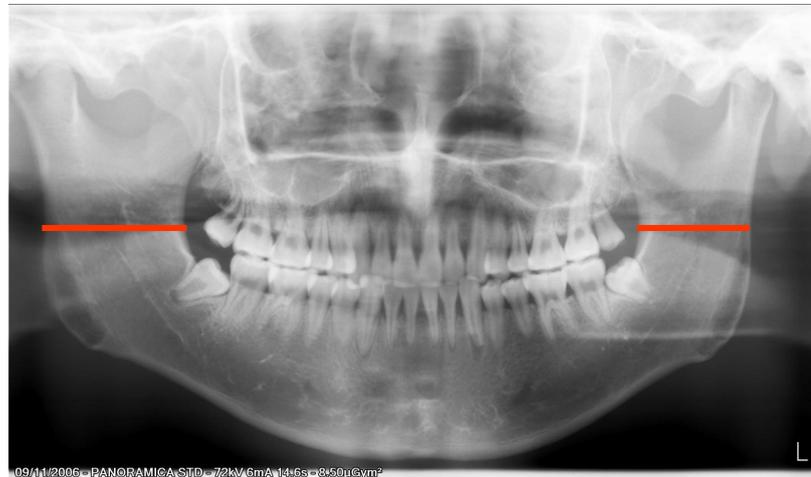


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Tilted head



- A middle part of the image will be blurred and enlarged, while the other one is reduced
- Temporo mandibular joint are not centered with respect to the central line
- Possible cause the temple support not well closed



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Twisted head



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Twisted head



- Temporo mandibular joint not at the same height on image
- Teeth in one side (the one near the cassette) are smaller than the teeth on the other side.



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Downward angulation of the head





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Downward angulation of the head



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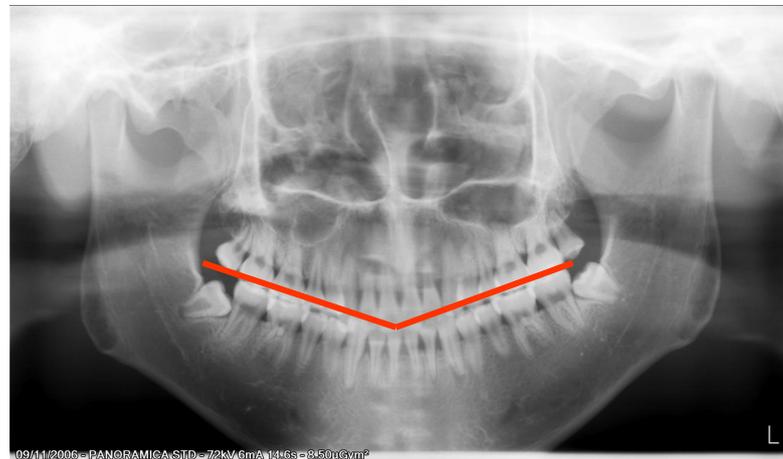


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Downward angulation of the head



- Lower scissors teeth can lay outside the focal plane, so they can be blurred
- In any case, they are reduced compared to the upper teeth
- Temporo mandibular joints are positioned in high position on film
- Possible cause can be a not good position of the chin rest.

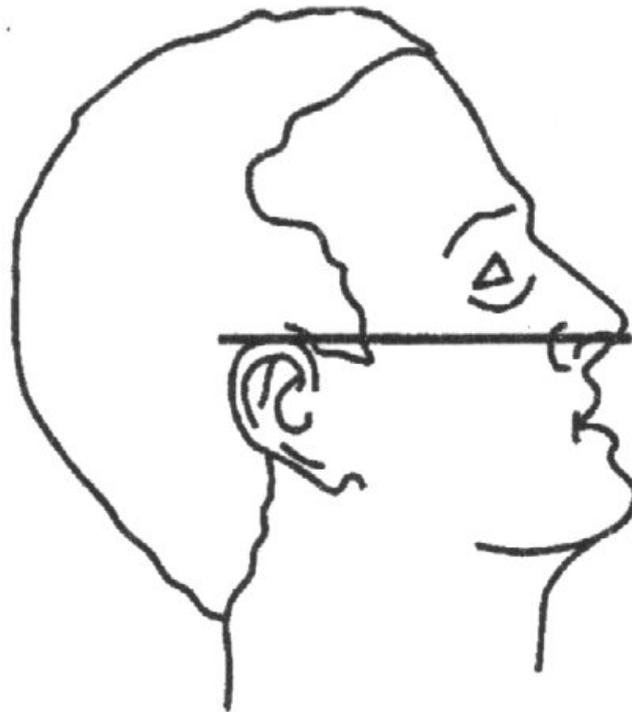


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Backward angulation of the head





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Backward angulation of the head



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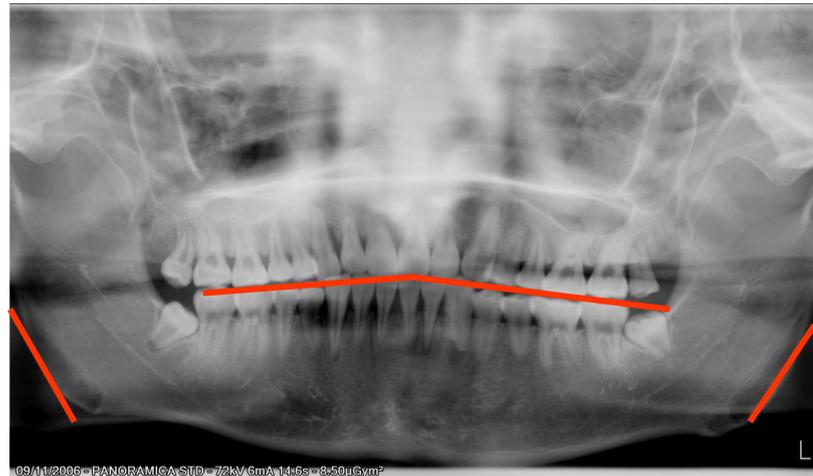


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Backward angulation of the head



- Flattening of the occlusal plane
- Superimposition of the hard palate on the maxillary teeth apices
- Superior teeth can be also blurred



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Images with protective apron on the X-Ray beam



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