C & T Spine Anatomy and Positioning

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Additional slides provided by Weber Faculty
Atlas (C1)

“Holds up the World”
Axis (C2)

Dens (odontoid process)

Superior articular process

Lamina

Spinous process

Body

Inferior articular process

Vertebral notch

Transverse foramen

Transverse process
Cervical Vertebrae

- Spinous process
- Lamina
- Superior articular process
- Pedicle
- Transverse process
- Transverse foramen
- Body
Cervical Vertebrae
Intervertebral Disc

Diagram showing the components of an intervertebral disc, including the Nucleus pulposus, Annulus fibrosus, and Spinal nerve.
AP Axial

CR at C4 (just inferior to the most prominent point of the thyroid cartilage)
AP Axial

Mandibular angle

Occipital bone

Body of C4

Intervertebral disk space

Spinous process
AP Projection
(Ottonello Method)

- Mandibular shadow blurred by even chewing motion during exposure.
- Pt’s head must be rigidly immobilized.
- Exposure time must be long.
- CR perpendicular to C4
Lateral C- Spine (Grandy Method)

CR at C4

SID 60-72 inches
Crosstable Lateral
Severe Hyperextension Fractures
“Hangman’s Fracture”

Fractures in the neural arch and facets.
Flexion

- Zygapophyseal joint
- Spinous process of C7
- Intervertebral disk space
- Mandible
Extension

- Mandible
- Zygapophyseal joint
- Spinous process of C7
- Intervertebral disk space
AP Axial Oblique

Open intervertebral foramina farthest from the cassette
http://www.radtechclass.com/portfolio/cervical-spine/
# Intertebral Foramina vs. Zygapophyseal Joints

<table>
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<th>Spine Formina and Zygapophyseal Joint Location Relating to the Degree of Positioning Rotation Needed for Demonstration of the Part</th>
<th>Invertebral Foramina Placement</th>
<th>Zygapophyseal Joint Placement</th>
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<td>Cervical Spine</td>
<td>45 degree oblique&lt;br&gt;AP—side up&lt;br&gt;PA—side down</td>
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<tr>
<td>Thoracic Spine</td>
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<tr>
<td>Lumbar</td>
<td>Lateral</td>
<td>30 to 50 degrees*&lt;br&gt;AP—side down&lt;br&gt;PA—side up</td>
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*From the anatomical position
Open Mouth Odontoid
AP Projection
Fuch’s Method for the Dens
**AP Axial**

**Vertebral Arch (Pillars or Lateral Masses)**

- With patient supine, hyperextend the neck.
- Less angle is required when the C curve is diminished. CR should coincide with plane of articular facets.
- Refer to page #399 for images.

$CR = 20-30$ degrees caudad @ C7
AP Axial Oblique
“Trauma Obliques”

- CR 45 degrees medial and 20 degrees cephalic angulation @ C4
- Cassette centered under the adjacent mastoid process
T-Spine

Costal facet
(articular facet for tubercle of rib)

Tranverse process

Superior costal facet
(Demi facet)

Superior articular process

20°

70°
Lateral Thoracic Vertebra
AP T-spine

CR at T7
Lateral T-Spine

CR at T7
“Swimmer’s Lateral”
Oblique T- Spine
Zygapophyseal Joints

CR at T7

Body rotated 70 degrees with the horizontal (20 degrees with the vertical)

AP: zygapophyseal joints **farthest** from the film
PA: zygapophyseal joints **closest** to the film
Oblique T-Spine
PA SCOLIOSIS
Myelogram
Diskography

- Examination of individual intervertebral disks
  - Performed with small quantities H2O soluble contrast injected into the center of the disk by way of double-needle entry

- Demonstrates internal disk lesions (i.e. rupture of nucleus pulposus) not demonstrated on myelogram.