

SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr MGR Medical University, Chennai

DEPARTMENT OF CARDIOPULMONARY PERFUSION CARE TECHNOLOGY

COURSE NAME: Anatomy

UNIT II – Vertebra

TOPIC: Cervical Vertebra

FACULTY NAME: Mrs. Saranyaa Prasath

EMPATHIZE: Cervical Vertebra Overview

Seven cervical vertebrae (C1-C7) form superior spine region

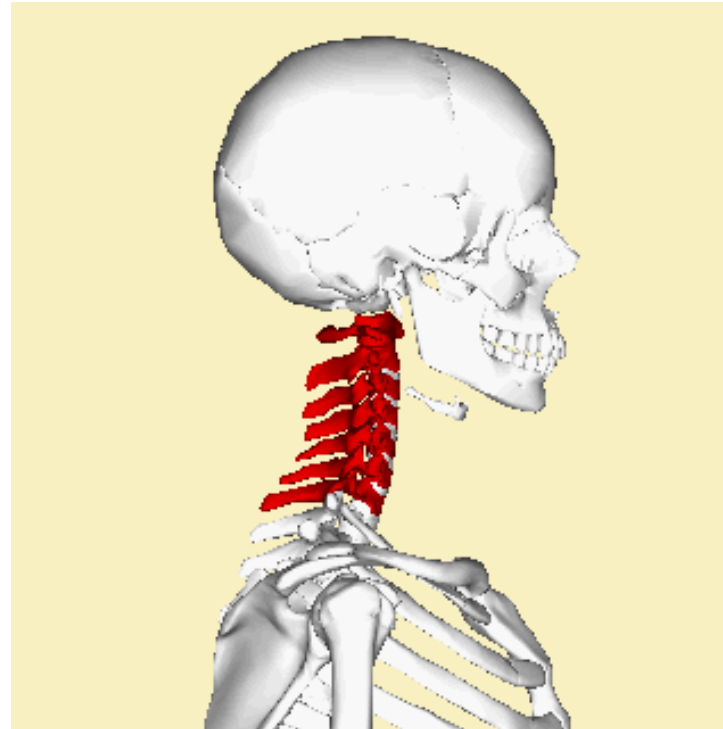
Support skull, enable neck mobility (flexion, extension, rotation)

Contain spinal cord & vertebral arteries (neurovascular vital)

Unique anatomy compared to thoracic & lumbar vertebrae

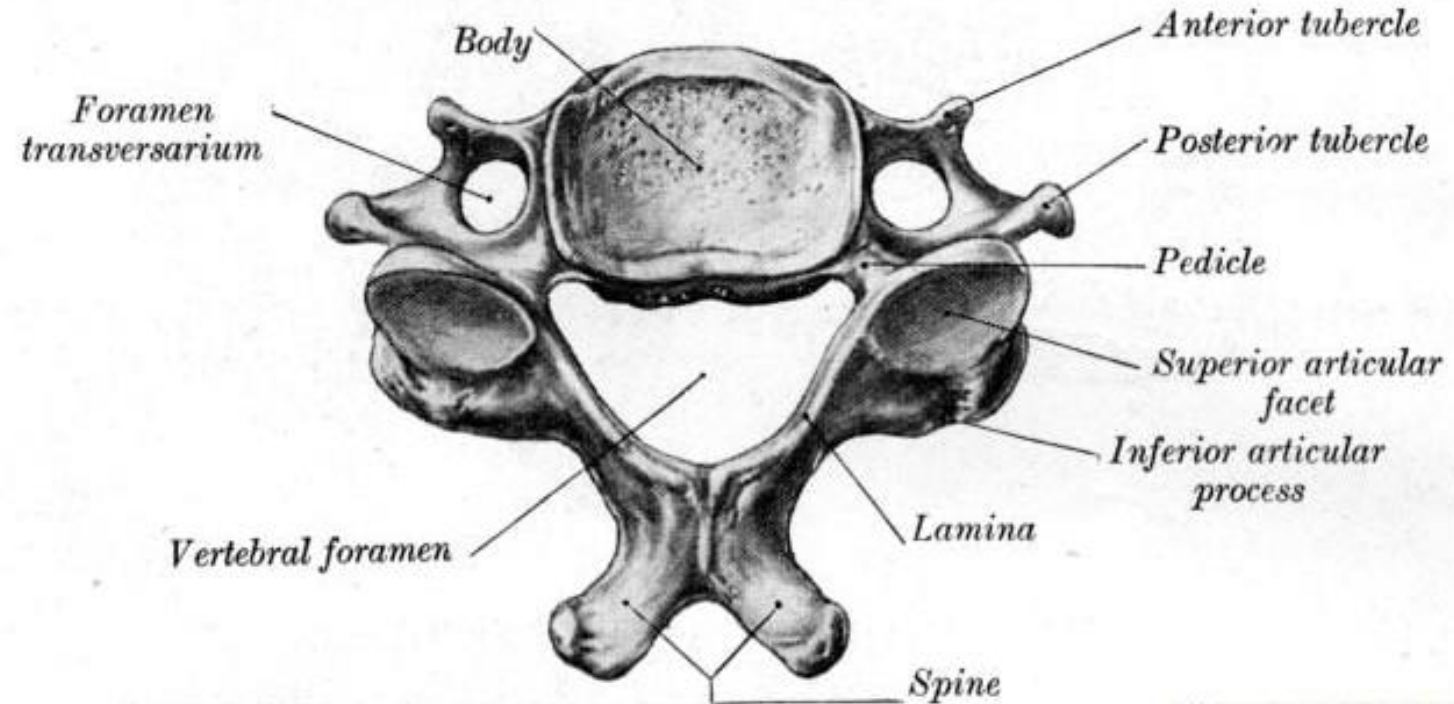
DEFINE: Three Categories

- **Atypical (C1, C2):** Atlas & axis with unique morphology
- **Typical (C3-C6):** Standard vertebral structure with common features
- **Transitional (C7):** Vertebra prominens; bridges cervical-thoracic



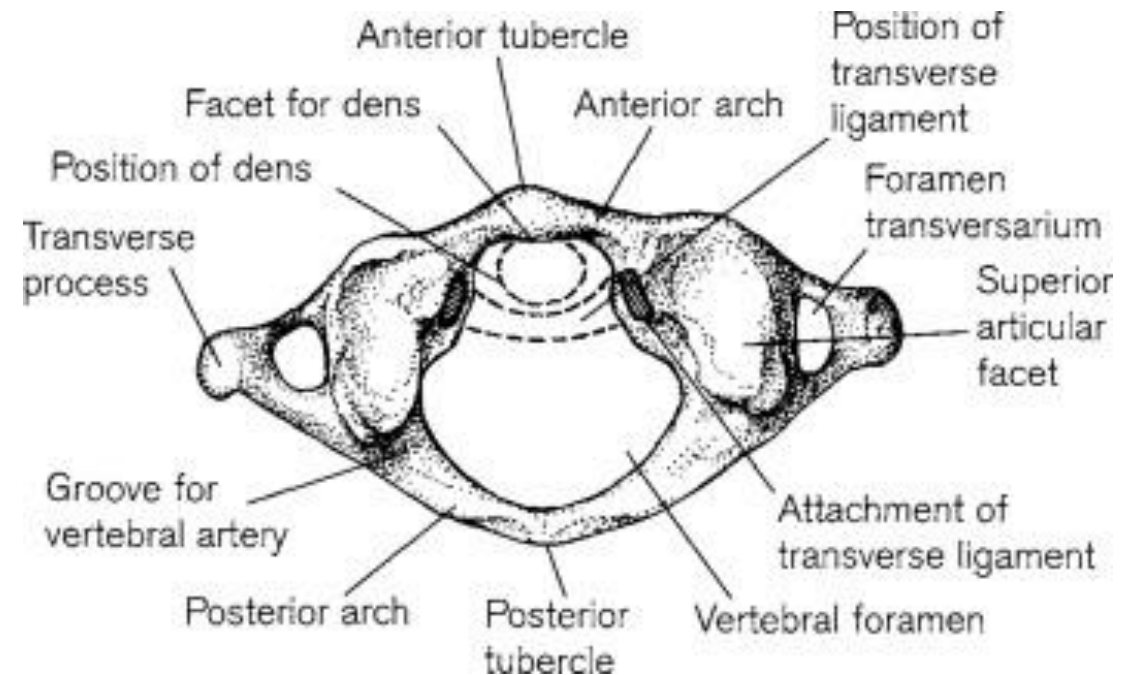
IDEATE: Typical Cervical Features (C3-C6)

- **Body:** Small, kidney-shaped; uncinata processes on lateral margins
- **Vertebral foramen:** Large, triangular; accommodates spinal cord
- **Transverse processes:** Contain transverse foramina for vertebral arteries
- **Bifid spinous process:** Split at apex; unique to cervical region



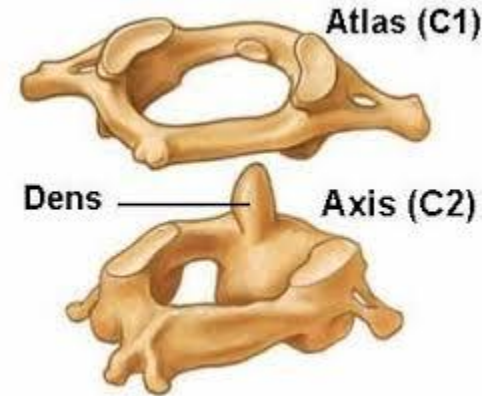
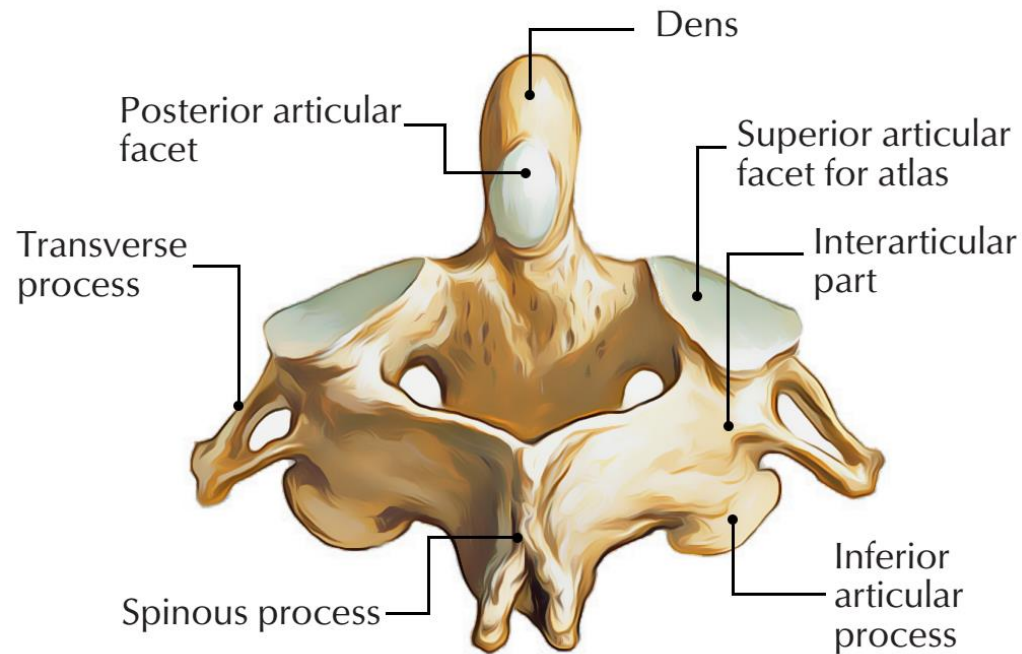
PROTOTYPE: Atlas (C1) - The Ring

Structure	Components	Superior articular facets	Function
Ring-shaped; lacks body & spinous process	Anterior arch, posterior arch, two lateral masses	Receive occipital condyles (skull articulation)	Supports skull; rotates with axis



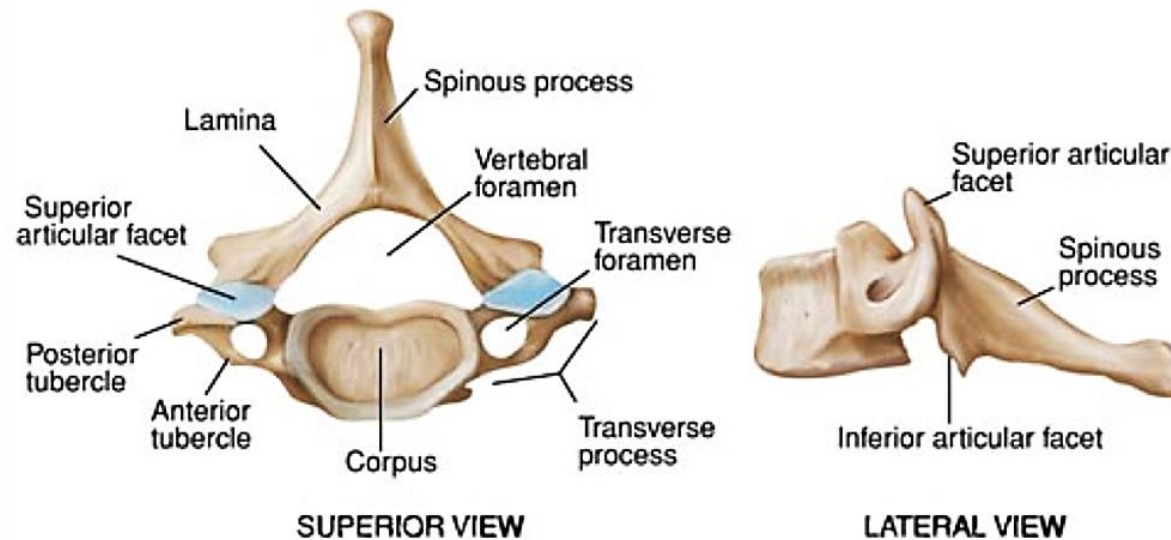
PROTOTYPE: Axis (C2) - The Pivot

- **Dens (odontoid process):** Projects superiorly; articulates with atlas
- **Function:** Enables head rotation; dens acts as pivot point
- **Transverse ligament:** Secures dens to atlas; prevents subluxation
- **Body & spinous process:** Prominent, bifid; palpable landmark



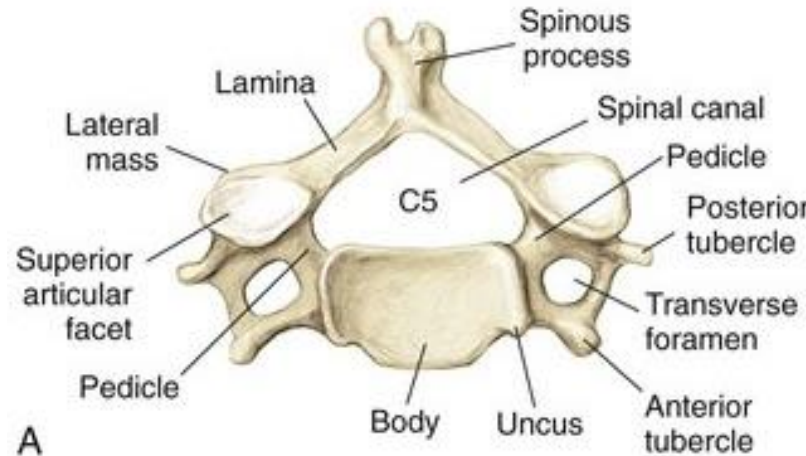
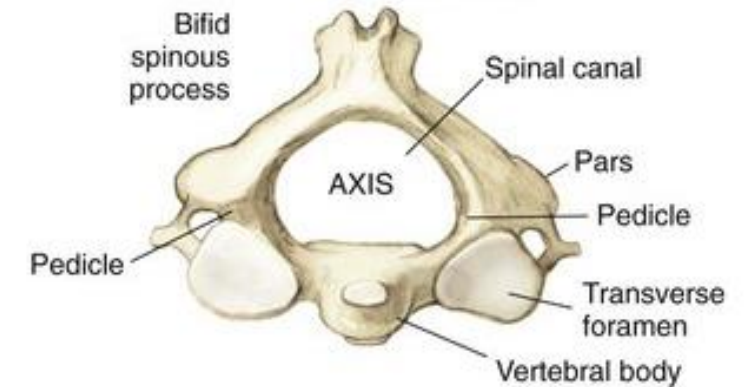
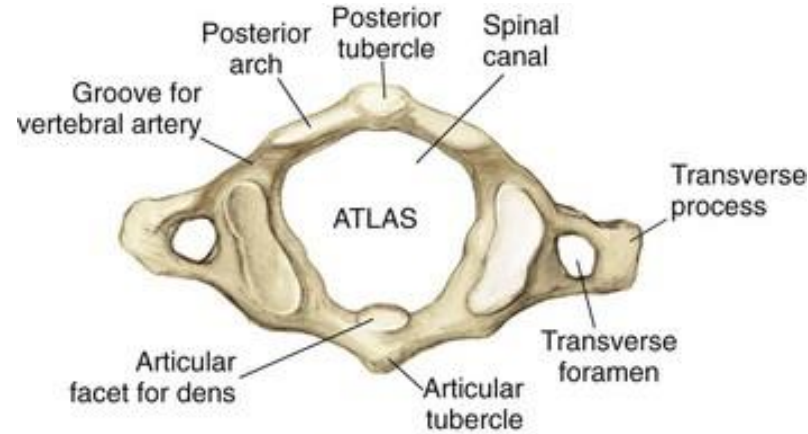
PROTOTYPE: C7 (Vertebra Prominens)

- **Distinctive feature:** Long, non-bifid spinous process; easily palpable
- **Position:** Transitional between cervical & thoracic vertebrae
- **Clinical landmark:** Base of neck palpable prominence; reference for imaging
- **Articulation:** Connects to T1; reduced cervical mobility below



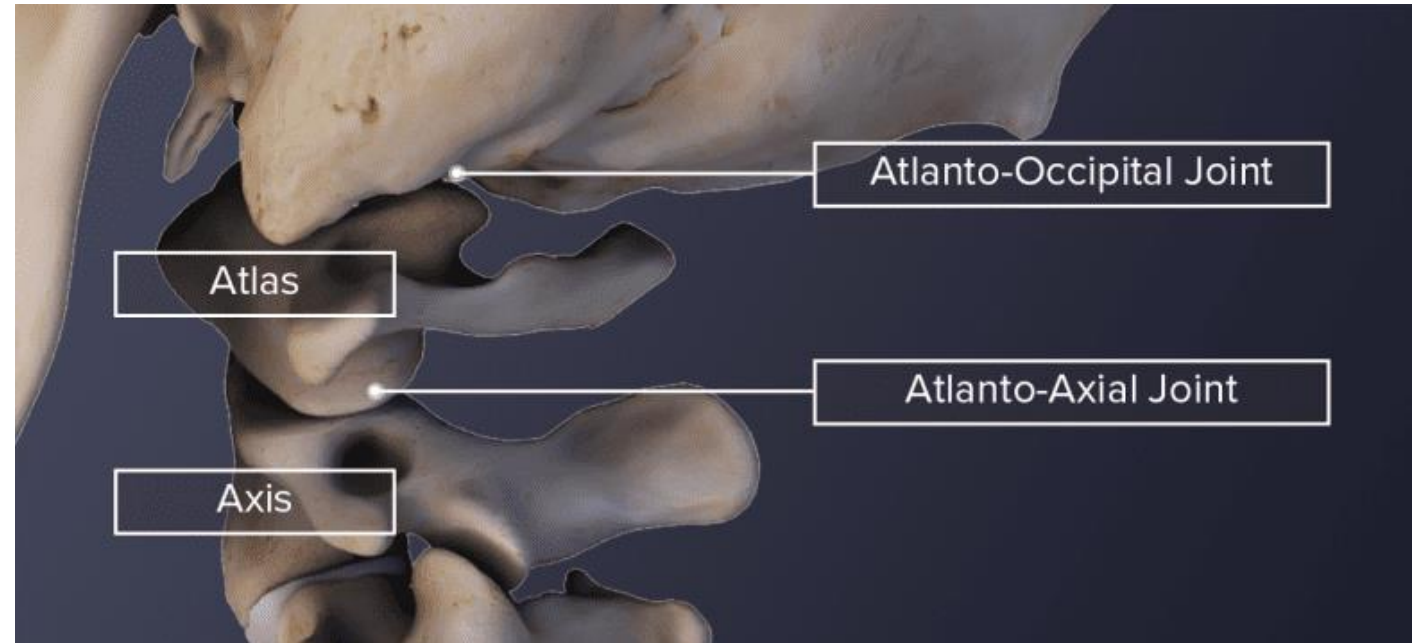
TEST: Unique Cervical Features

- **Transverse foramina:** Unique to cervical vertebrae; transmit vertebral arteries
- **Bifid spinous process:** C3-C6 characteristic; aid lateral bending
- **Uncinate processes:** Prevent lateral disc herniation; C3-C7
- **Greater mobility:** Smaller bodies; flexible for head movement



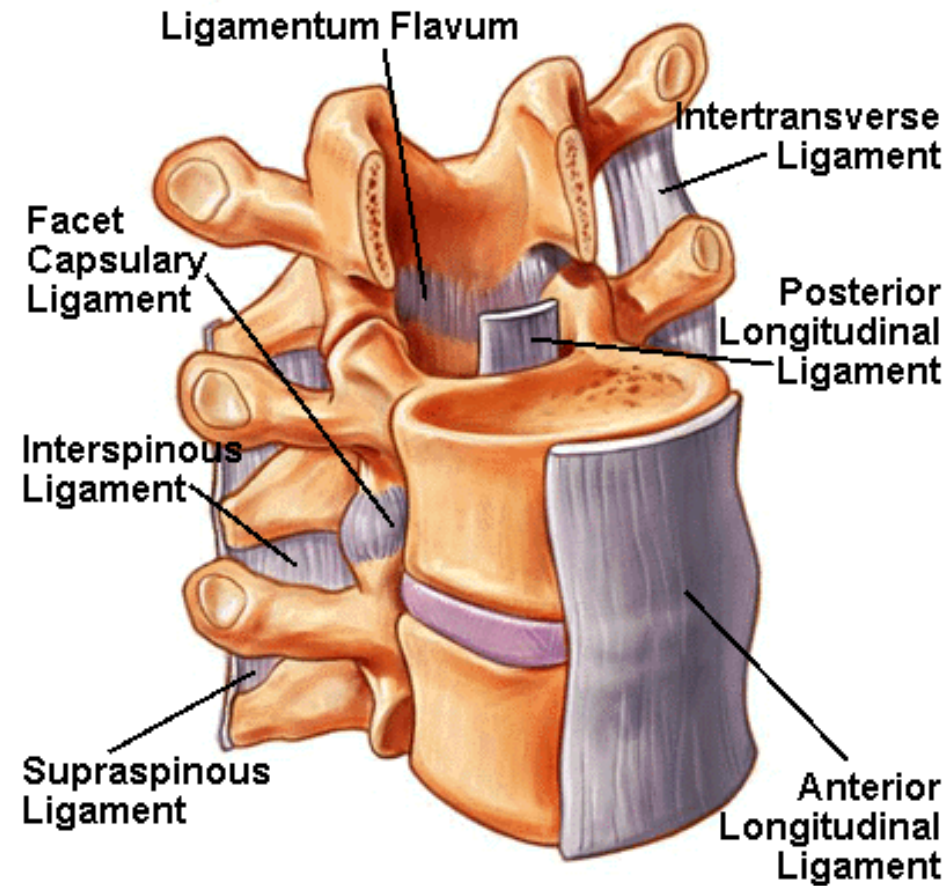
Joints

- **Atlanto-occipital (C0-C1):** Flexion/extension of head.
- **Atlantoaxial (C1-C2):** Rotation of head.
- **Intervertebral (C2-C7):** Flexion, extension, rotation, lateral flexion.
- **Uncovertebral (C3-C7):** Stability and prevent disc herniation.



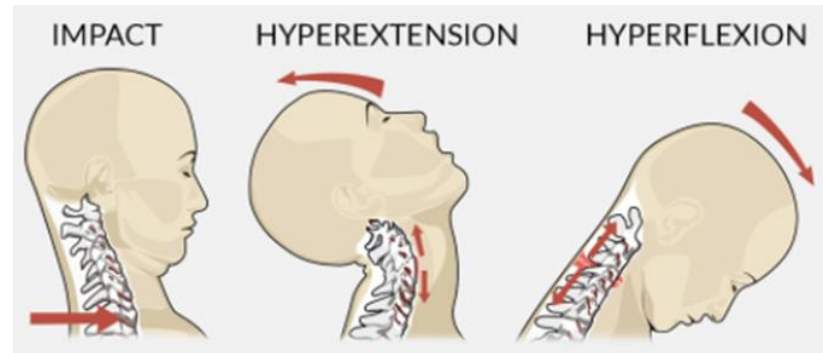
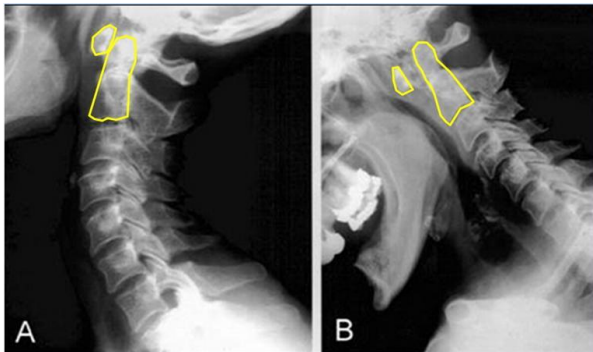
Ligaments

- **Anterior/posterior longitudinal:** Limit extension/flexion.
- **Ligamentum flavum:** Limits flexion.
- **Interspinous/supraspinous/nuchal:** Limit flexion, muscle attachment.
- **Transverse, alar, cruciate:** Stabilize dens (C1-C2)

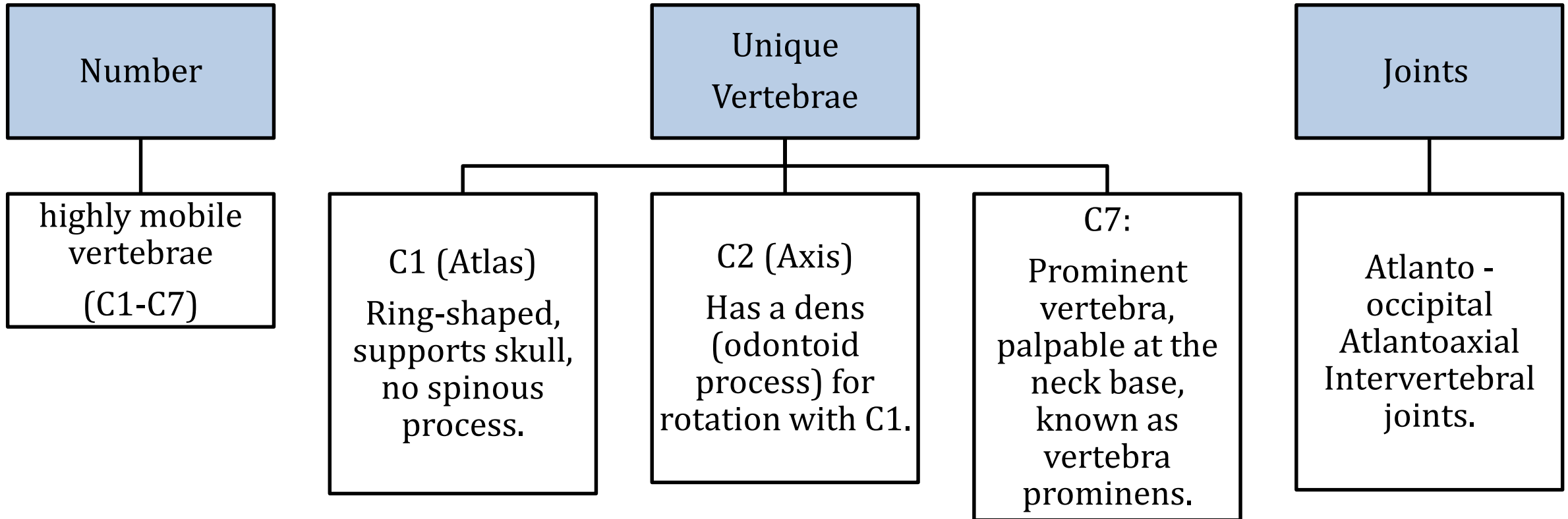


TEST: Clinical Importance & Common Conditions

- **Whiplash injury:** Hyperflexion-extension trauma; soft tissue damage
- **Cervical myelopathy:** Spinal cord compression; neurological deficit
- **Atlantoaxial subluxation:** C1-C2 instability; serious complication
- **Cervical spondylosis:** Degenerative disc disease; nerve root compression



Summary



References

- <https://www.earthslab.com/anatomy/axis-c2/>
- [https://www.physio-pedia.com/Structure and Function of the Cervical Spine](https://www.physio-pedia.com/Structure_and_Function_of_the_Cervical_Spine)
- <https://teachmeanatomy.info/neck/bones/cervical-spine/>
- <https://anatomy.app/encyclopedia/cervical-vertebrae>
- [https://en.wikipedia.org/wiki/Cervical vertebrae](https://en.wikipedia.org/wiki/Cervical_vertebrae)
- <https://www.kenhub.com/en/library/anatomy/cervical-spine>

THANK YOU