

RU RMT 02

Skeletal Lecture 13

Vertebral Column - Thoracic Lumbar

Regional

Typical Thoracic Vertebrae (T2 to T9 Vertebrae)

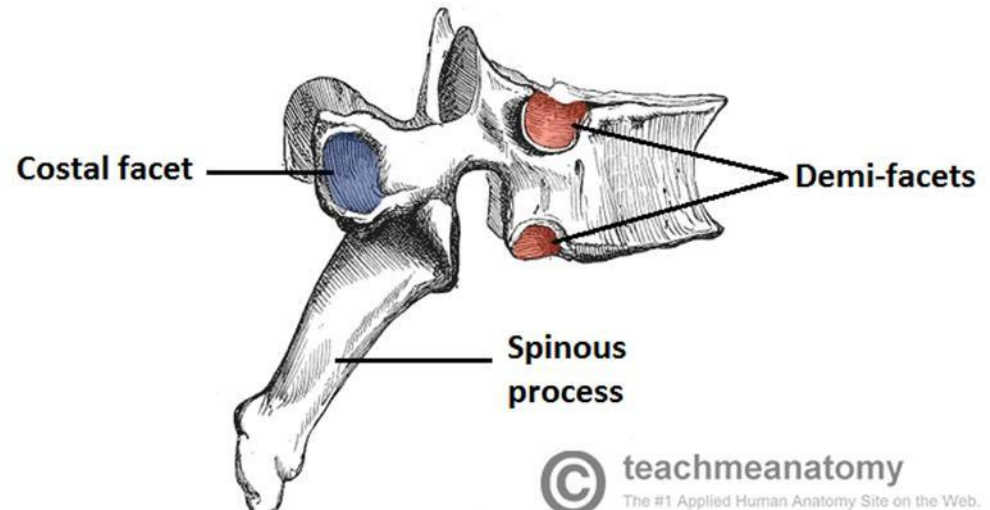
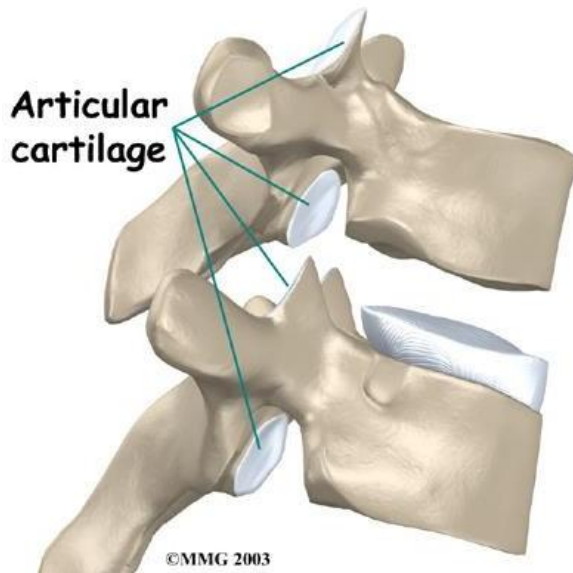
- **Body** – Heart shaped vertebral body, larger vertebral bodies than in the cervical spine
 - **The costal facets** on the vertebral body are demifacets (demi-facet on the superior portion of the vertebral body below and a demi-facet on the inferior portion of the vertebral body above)
 - **The demi-facets** are found on vertebral bodies T2-T9
- **TVPs** – Non bifid, No transverse foramen
 - Costal facets on each TVP for articulation with tubercle of rib
- **SPs** – Non bifid, slender and angled inferiorly
 - SPs are most angled between T5 to T8

Thoracic

Vertebrae

? Type of thoracic vertebra and its characteristics

- **Vertebral Foramen** is small and round
- **The articular facets** are located in the coronal aka frontal plane, the superior facet face posteriorly and the inferior facet face anteriorly.
 - **Motions found in the thoracic spine:** limited flexion and extension, more lateral flexion and rotation allowed

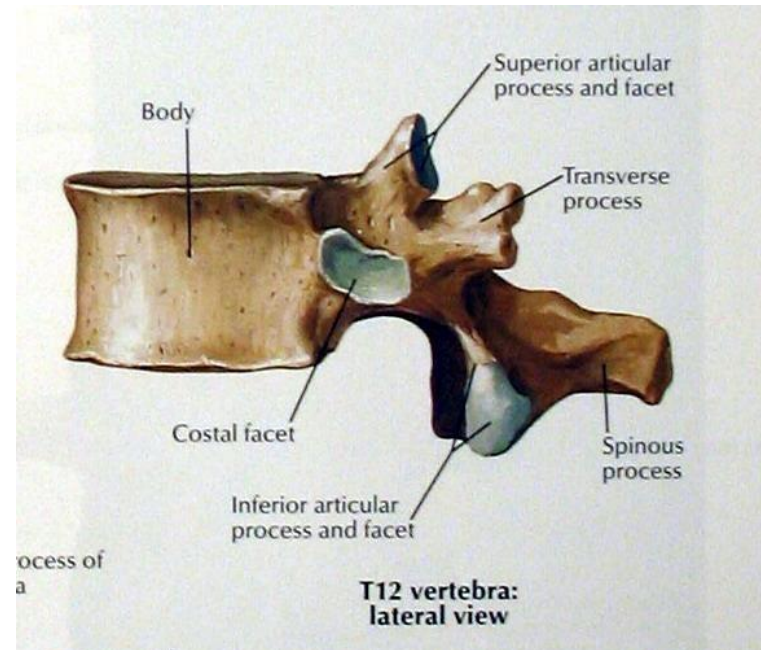


Thoracic Vertebrae

Atypical thoracic vertebra

☐ **Include vertebrae T1, T10, T11 and T12**

- All the vertebral bodies of the atypical vertebrae have full costal facets bilaterally
- T12 is missing BI TVP's (or are underdeveloped)



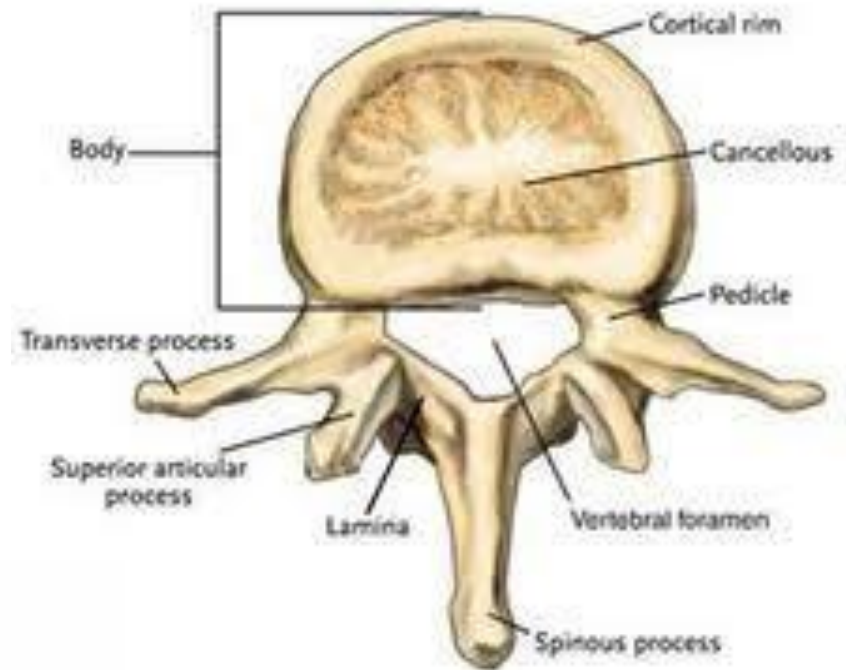
Regional

Characteristics

Typical Lumbar Vertebrae (L1 to L5 Vertebrae)

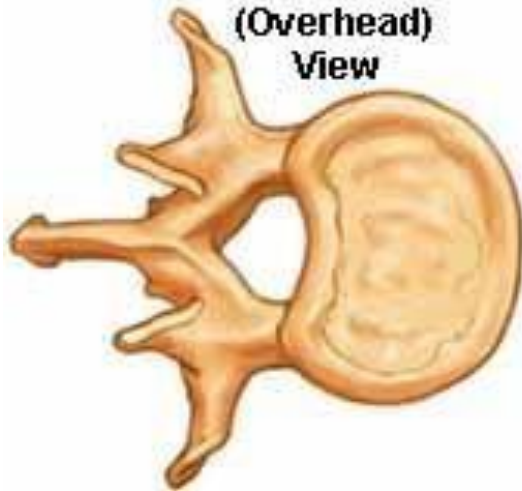
- **Body** – Large thick and kidney bean shaped
- **TVPs** – Small and slender
- **SPs** – Non bifid, thick and blunt, hatchet shaped
- **Vertebral foramen** – Smaller and triangular
- **Articular Processes** - Articular facets are in the sagittal plane (except for the inferior articular facets of L5 – which abruptly switches back to the coronal plane to articulate with the sacrum)
 - **The motions in the lumbar spine include:** Flexion, extension are easily allowed, limited rotation and lateral flex
 - **Mammillary process** : extra bump found on superior articular processes of lumbar vertebra
- The **lumbosacral angle** is the angle found between the L5 vertebrae and the sacrum

Lumbar Vertebrae



Lumbar Vertebrae

**Axial
(Overhead)
View**



**Lateral
(Side)
View**



Intervertebral Discs

- **Components of the IVD:**

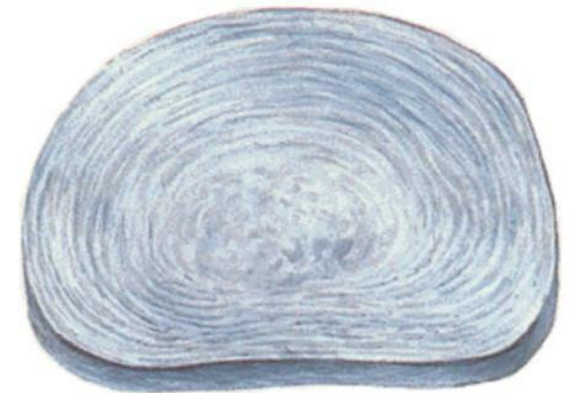
- **Nucleus Pulposus:** A semi fluid center, like jelly, located slightly posterior to the center
- **Annulus Fibrosus (Layered structure):** Outer fibrous layer of the disc is made up of concentric lamellae of fibrocartilage (these layers are perpendicular to the layer above and below), looks like the layers of an onion

- **Function of the IVD:**

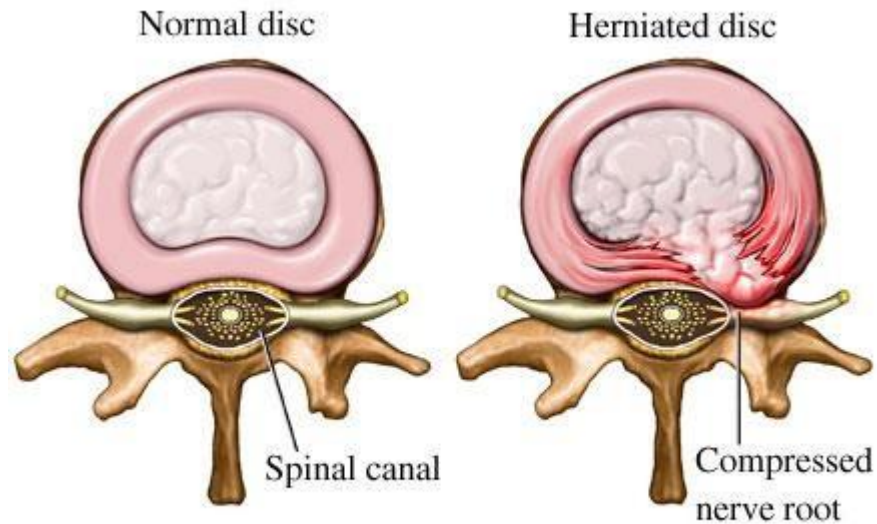
- Resistance to compression (shock absorption) at rest and during movement, connection between the vertebral bodies, makes up **25%** of our vertebral height

- **IVD Herniation:** When the nucleus pulposus protrudes through the annulus fibrosus, leading to pain and possible nerve compression;

most commonly seen in the L/S spine



DISC HERNIATION



Top views of vertebrae

Four stages to a disc herniation

Degeneration



Prolapse



Extrusion



Sequestration



THORACIC / LUMBAR SPINE

PALPATION

***Not on Palp OP**

- Partner prone

Thoracic

- Locate the SP of C7 and trail inferiorly along the SPs of thoracic spine
- Notice the different sizes, prominences and spaces between the processes as they will change as you trail inferiorly.

Lumbar

- Locate PSIS and trail to the midline and locate the SP of S2 and then slightly superior
- The SPs should feel flat and thin with a very small space between them

THORACIC / LUMBAR SPINE

PALPATION

Thoracic & Lumbar Lamina groove

***Not on Palp OP**

- Partner prone
- Start on the SP of C7 and trail inferiorly to the SP of T1.
- Trail slightly laterally into a groove or depression
- Using firm pressure, strum horizontally exploring both sides of the groove
- Note the thick muscle tissue that lies in this groove
- Continue to trail inferiorly and follow the steps for the L/S, noting how the laminar groove widens, deepens and has thicker muscle tissue overlying it

Description:

THORACIC / LUMBAR SPINE

3. **PALPATION** Thoracic & Lumbar TvPs

***Not on Palp OP**

Thoracic TvPs (Prone)

- Locate SP of C7 and trail inferiorly to the SP of T1
- Move laterally through the laminar groove and “up” onto an elevation of muscle and bone (TvPs).
- Move slightly laterally to feel the flatness of the ribs and push medially and deep into the tips of the TvPs

Lumbar TvPs (Prone)

- Locate PSIS and trail medially to the midline and the SP of S2, slide slightly superior and then laterally into laminar groove and over mound of soft tissue
- Slowly sink fingers medially “under” and through muscle tissue and explore for the tips of the TVPs