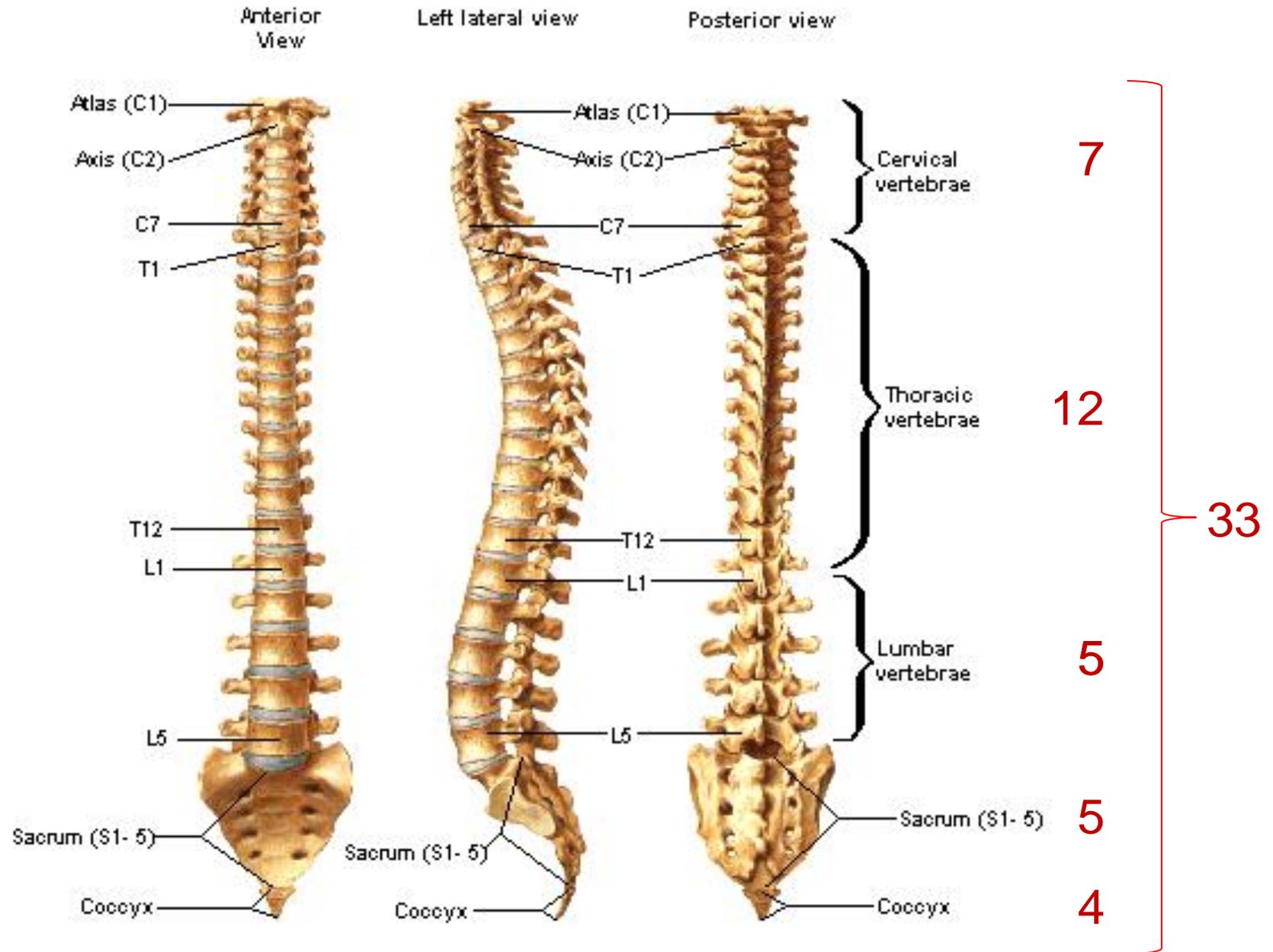


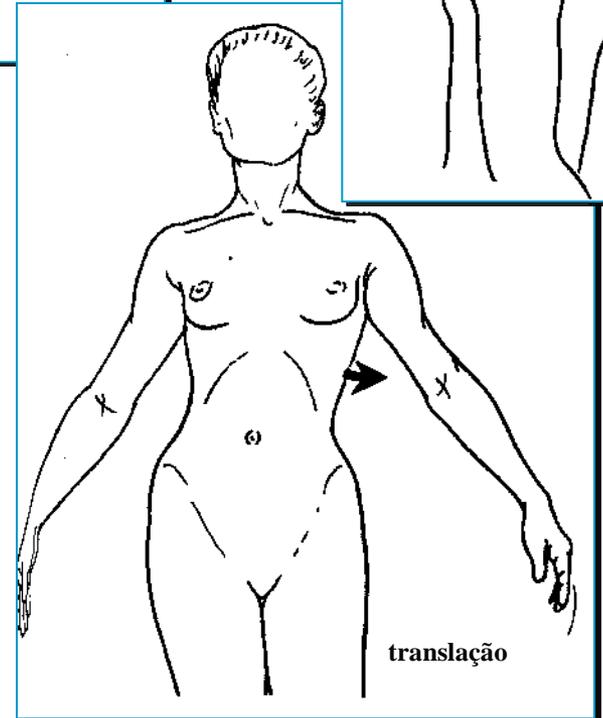
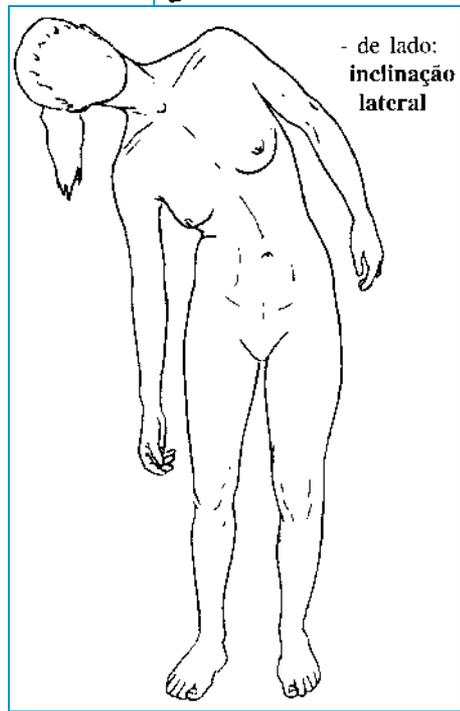
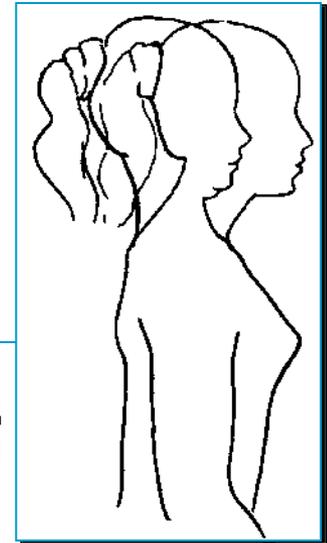
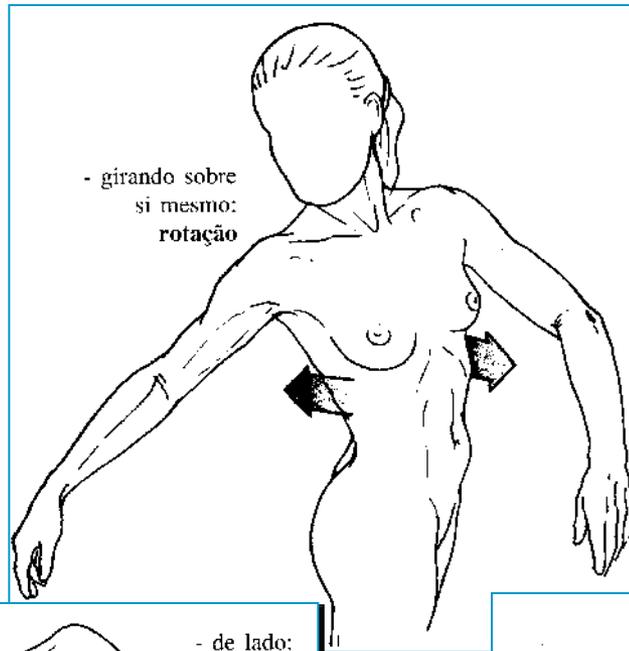
# **Ossos da Coluna Vertebral e do Tronco**

# Vertebral Column



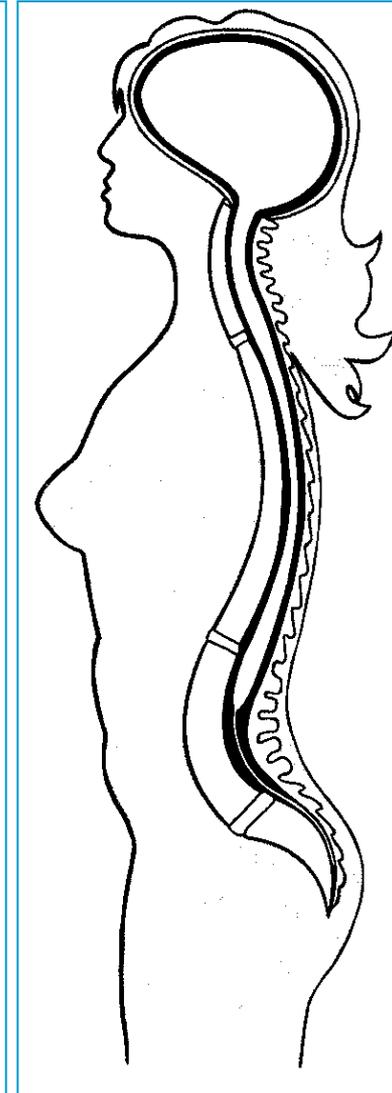
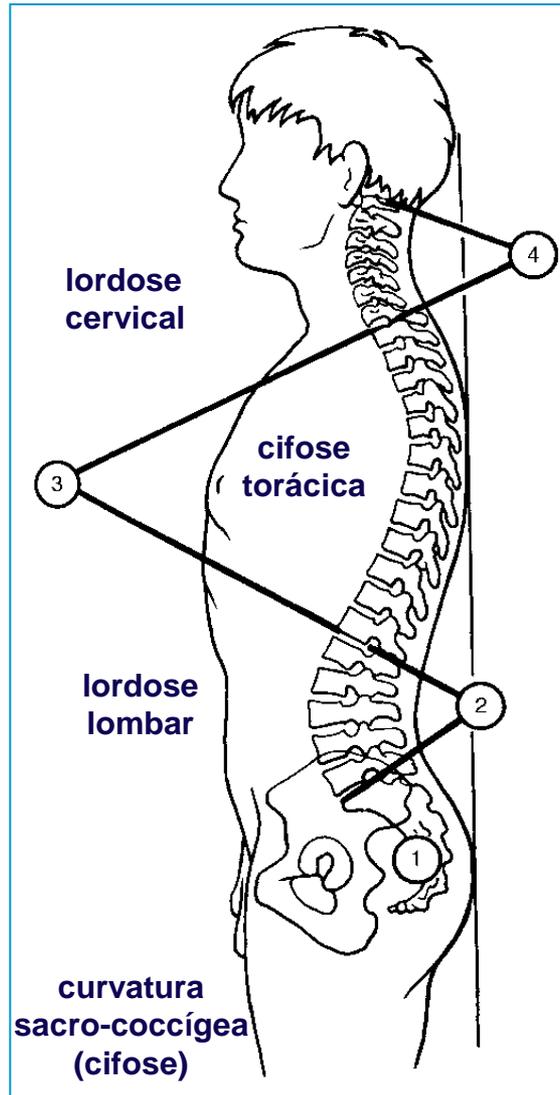
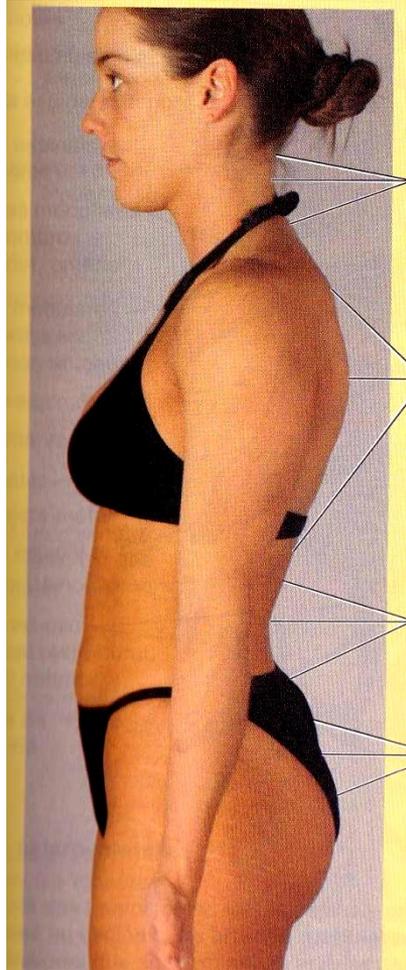
-2/5 da h do corpo humano (~71 cm no ♂ e ~61 cm na ♀)

-atua como uma haste flexível e resistente, com elementos que se movem para a frente, para trás, para os lados e giram



## -Funções:

- envolve e protege a medula espinhal;
- suporta o peso da cabeça e o peso da região superior do corpo;
- atua como ponto de fixação para as costelas e cingulo do membro inferior;
- atua como ponto de fixação para os músculos do dorso.
- oferece um eixo parcialmente rígido e flexível para o corpo.



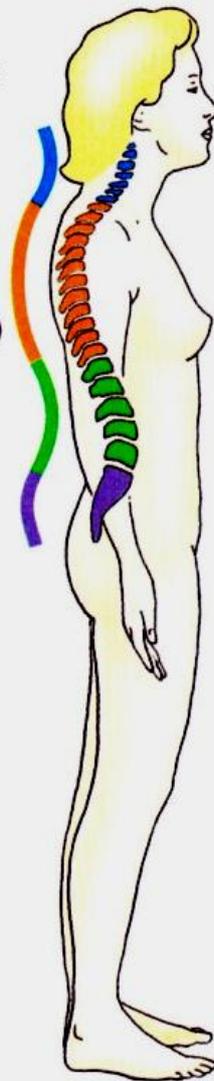
### Curvaturas:

Cervical (2ª)

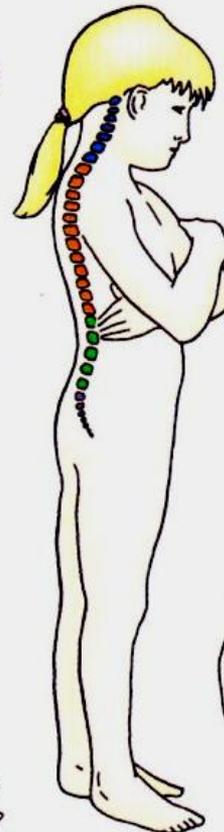
Torácica (1ª)

Lombar (2ª)

Sacral (1ª)



Adulto



4 anos



Recém-nascido



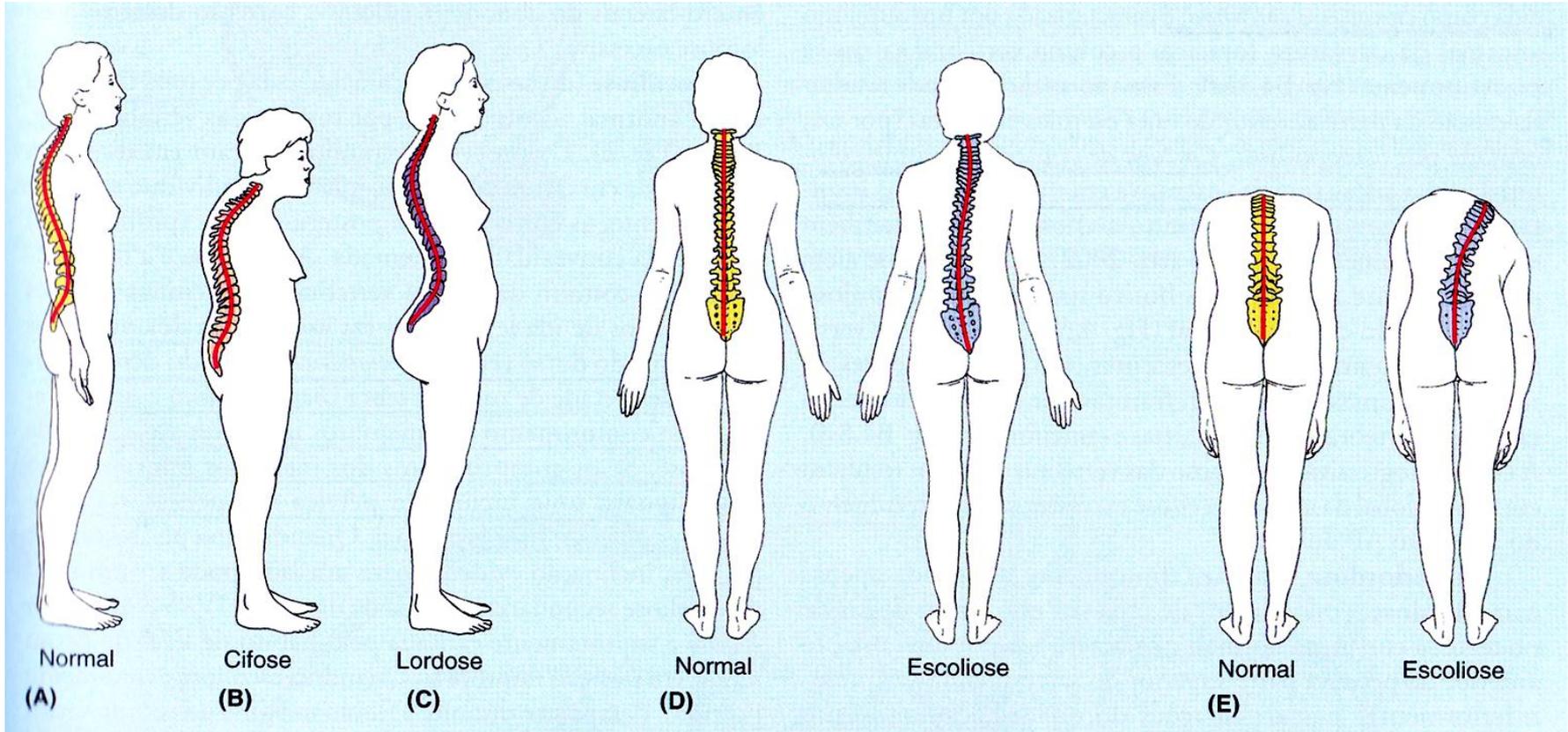
Feto

- 3º mês – sustentação da cabeça ereta  
- lordose cervical
- sentar e ficar em pé – lordose lombar
- 10 anos – curvaturas completamente desenvolvidas

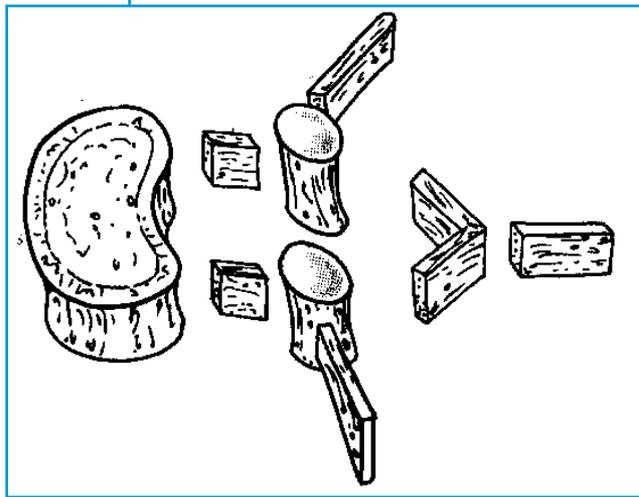
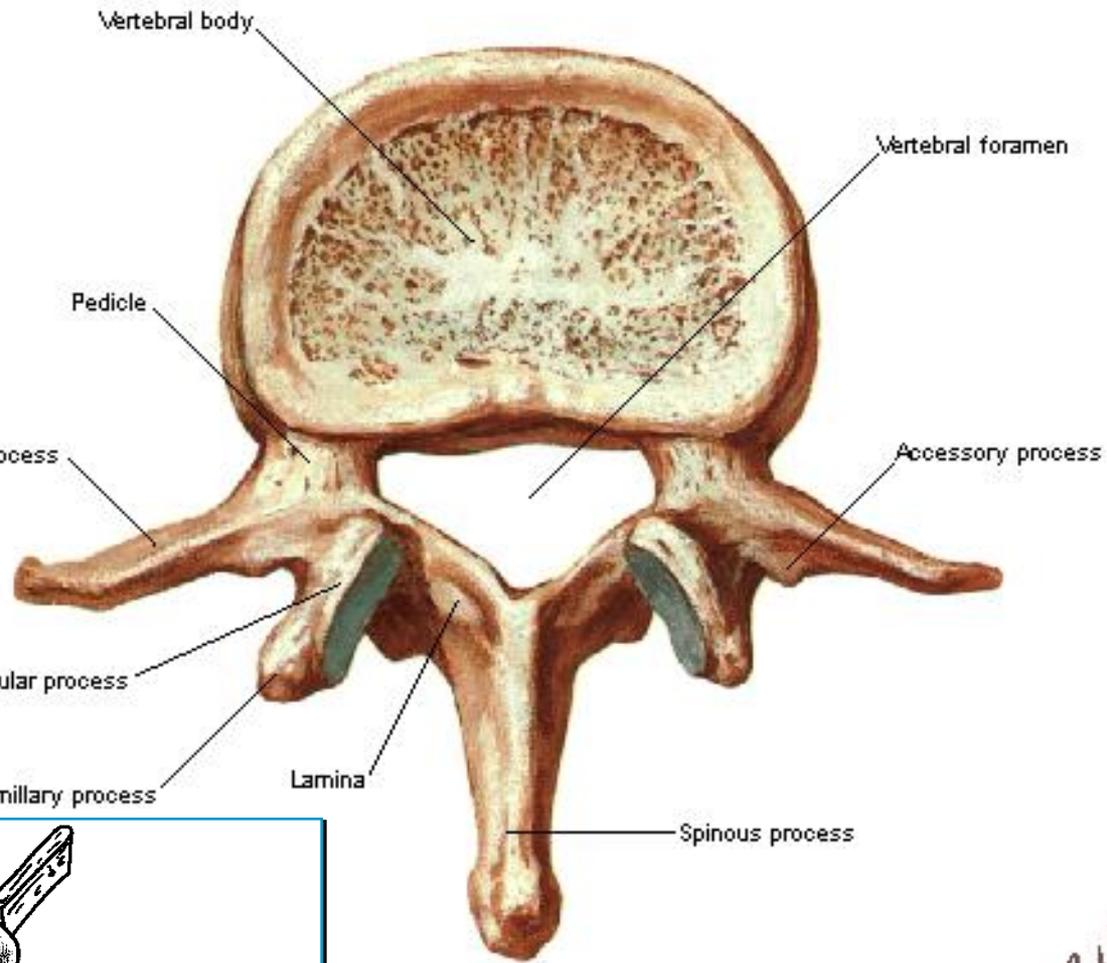
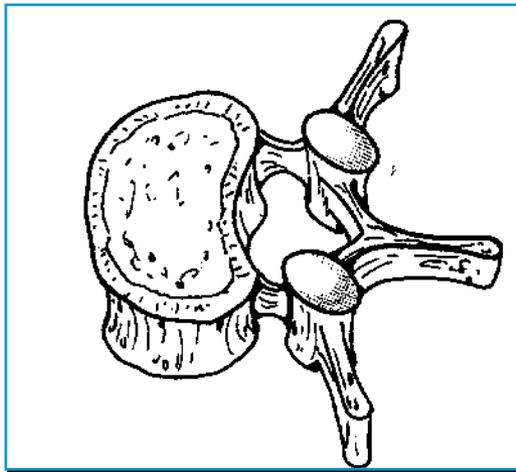
### -Funções:

- aumentam a resistência da coluna vertebral;
- melhor absorção de impactos (maior resiliência);
- ajudam a manter o equilíbrio na posição ereta;
- ajudam a proteger as vértebras contra fraturas;
- oferecem flexibilidade ao esqueleto axial.

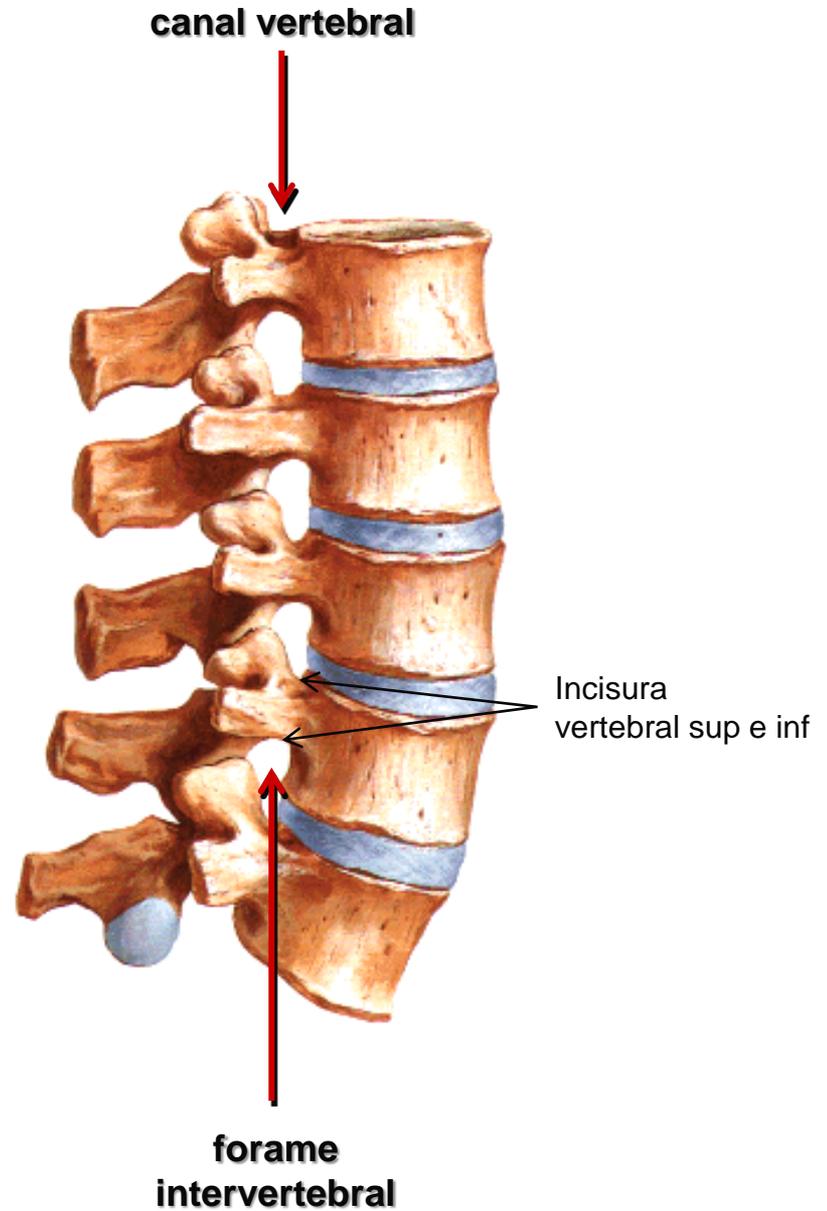
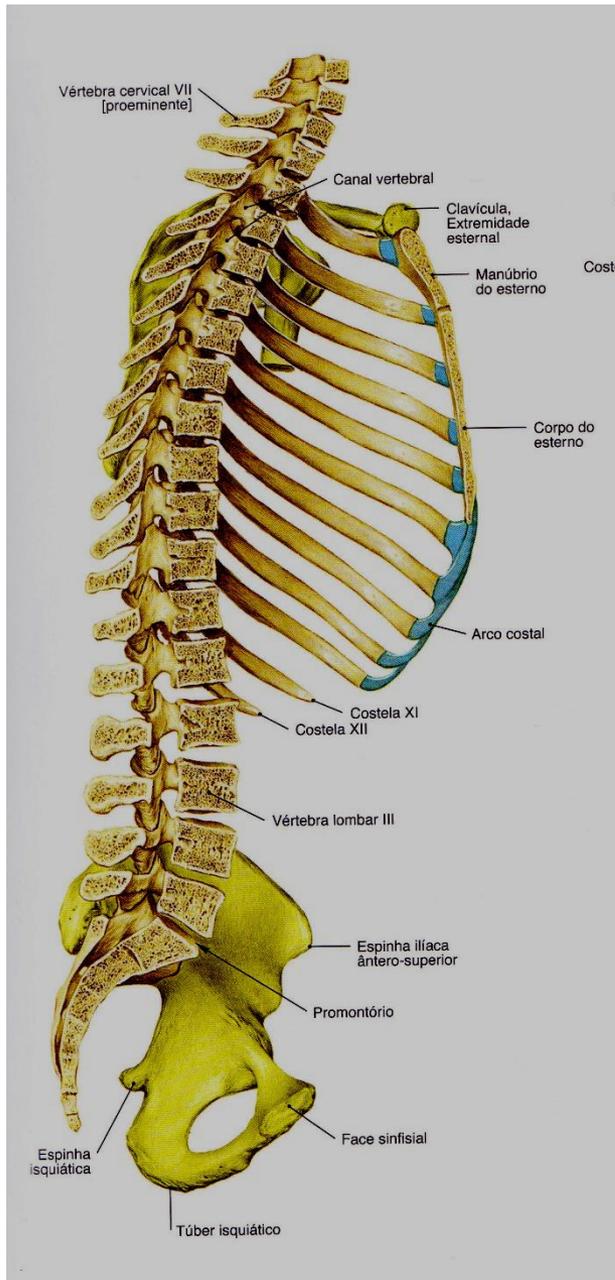
## Curvaturas Anormais da Coluna Vertebral

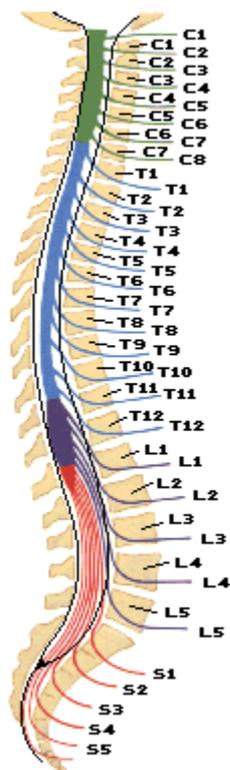
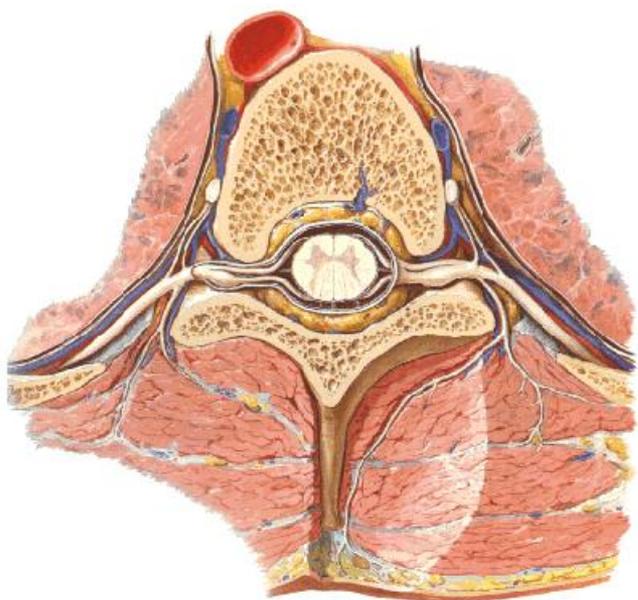
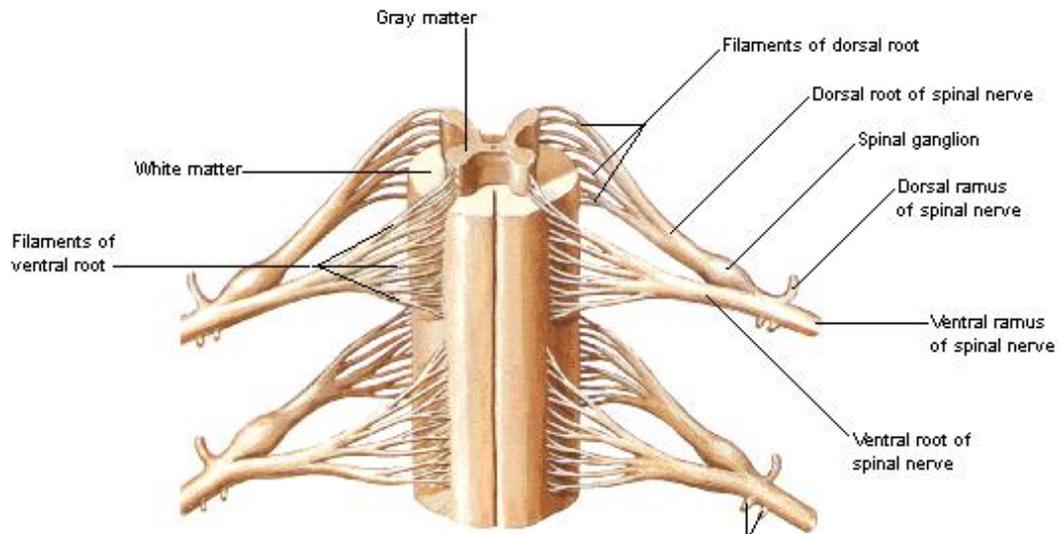


# **Partes Comuns às Vértébras**

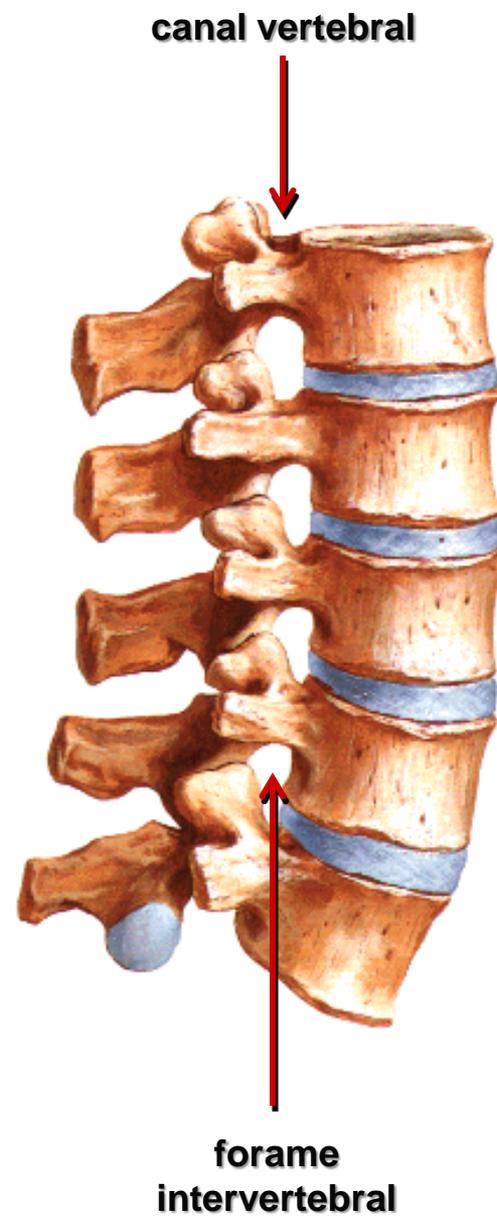


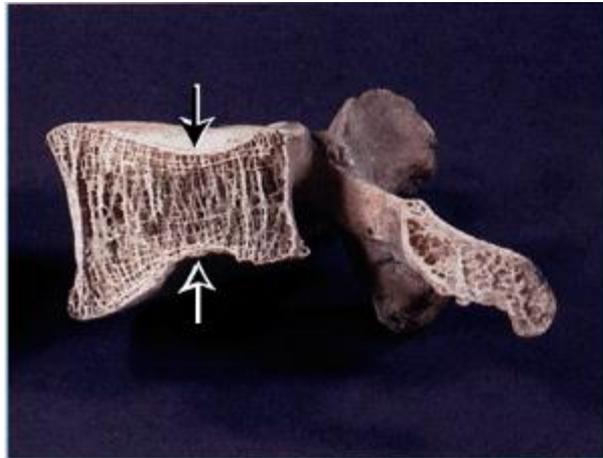
- Corpo vertebral
- Arco vertebral (pedículos + lâminas)
- Pedículo do arco vertebral (incisuras vertebrais sup e inf)
- Lâmina do arco vertebral
- Processo transverso
- Processo espinhoso
- Processo articular superior e face articular superior
- Processo articular inferior e face articular inferior
- Forame vertebral



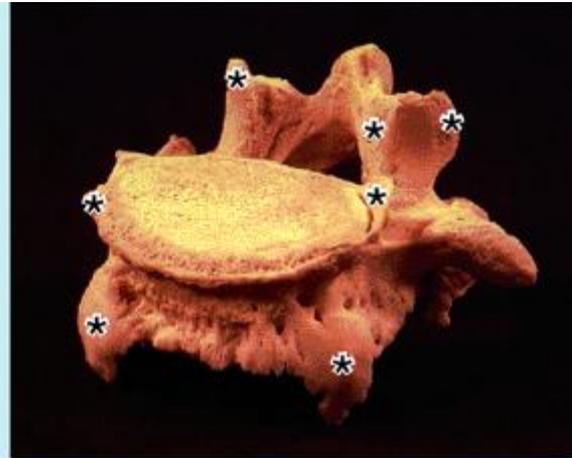


Dr. A. H. H.



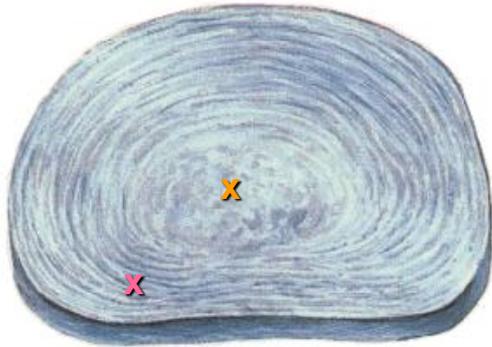


(A) Medial view of right half of lumbar vertebra



(B) Left anterior superior oblique view \* = osteophytes

# O Disco Intervertebral

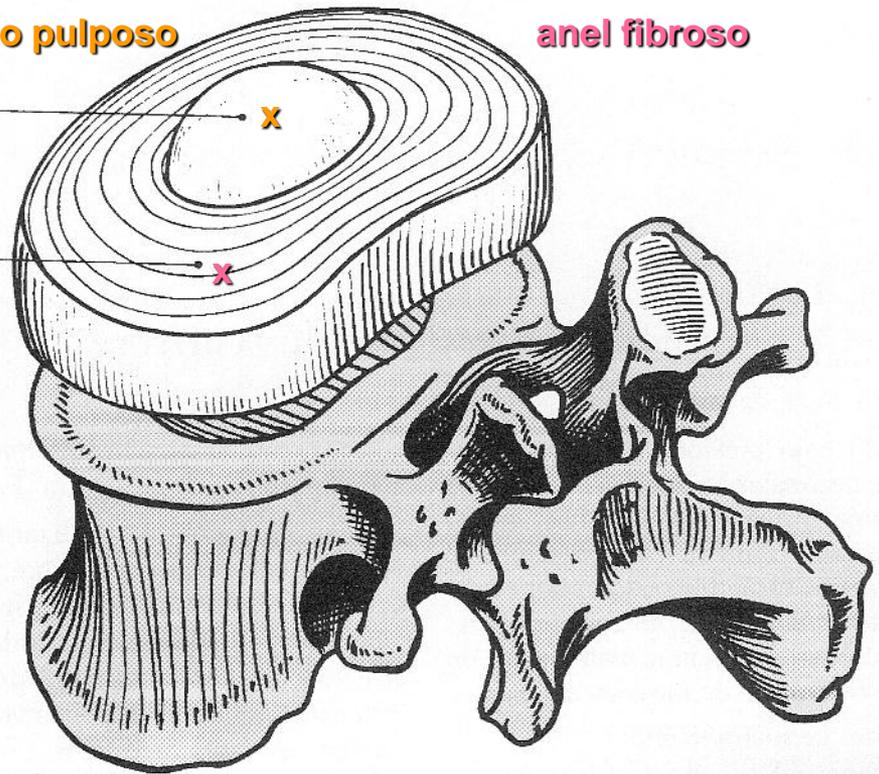


núcleo pulposo

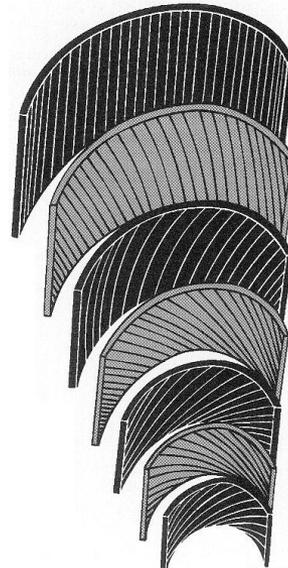
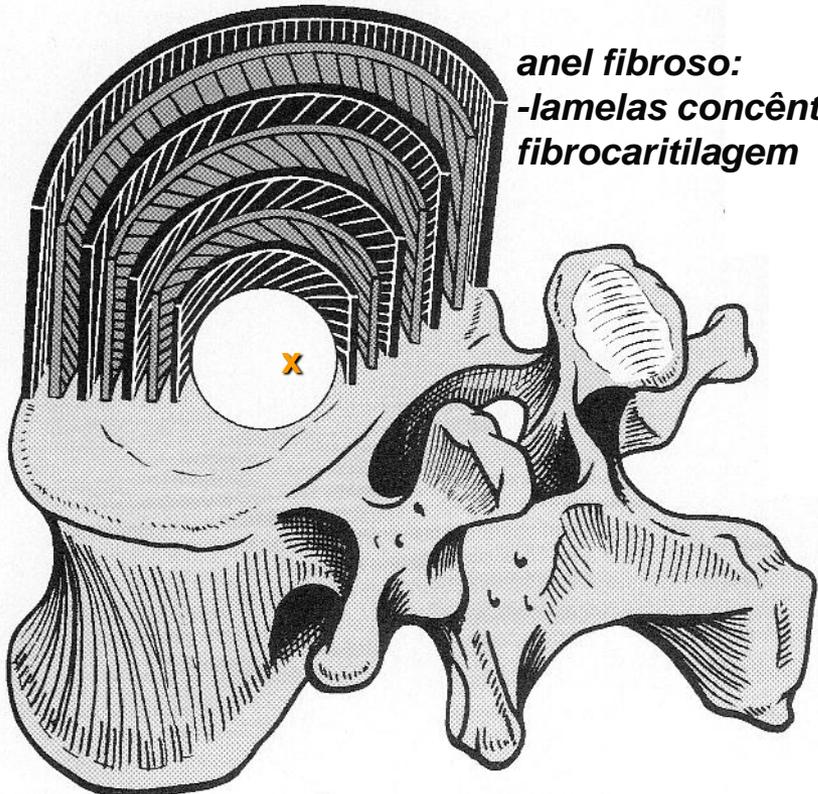
anel fibroso

N

A

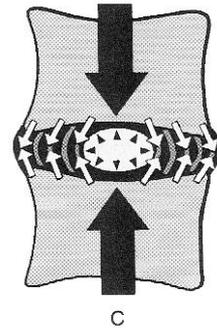
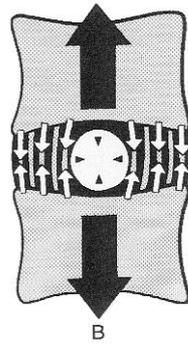


*anel fibroso:*  
*-lamelas concêntricas de*  
*fibrocartilagem*



-estabilidade  
-amortecimento

Obs.: Representam 20-25% da  
h da coluna vertebral

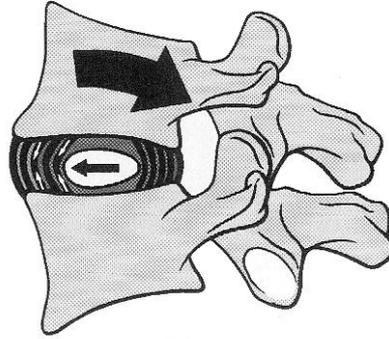


B

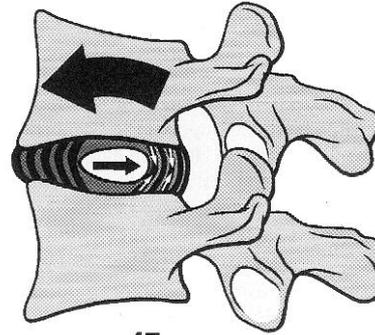
A

C

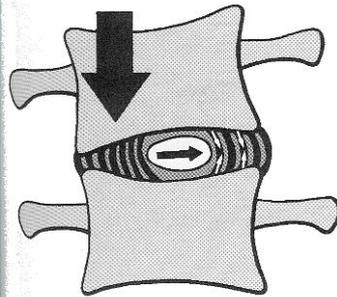
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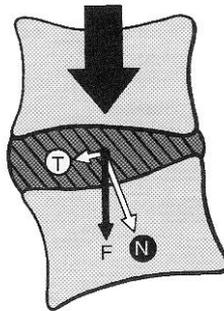
46



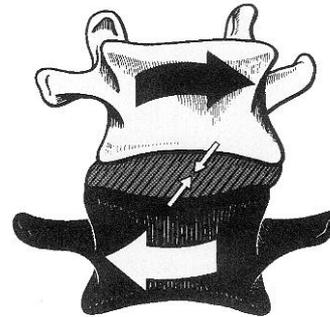
47



48

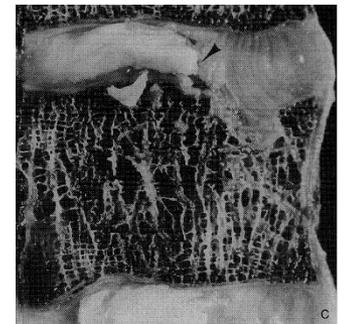
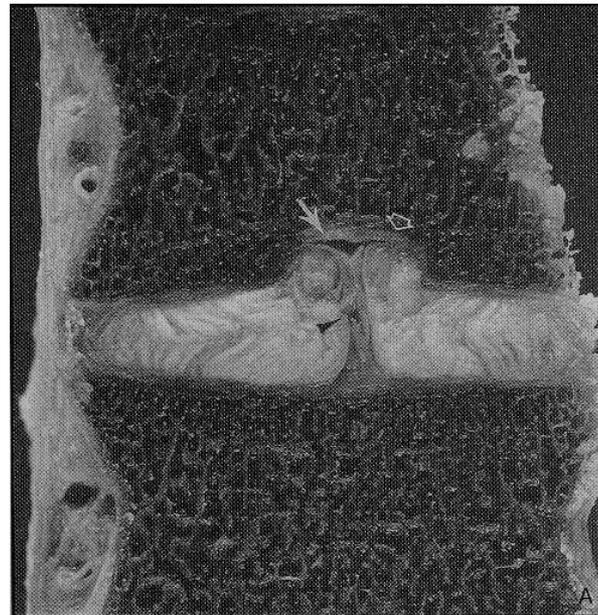
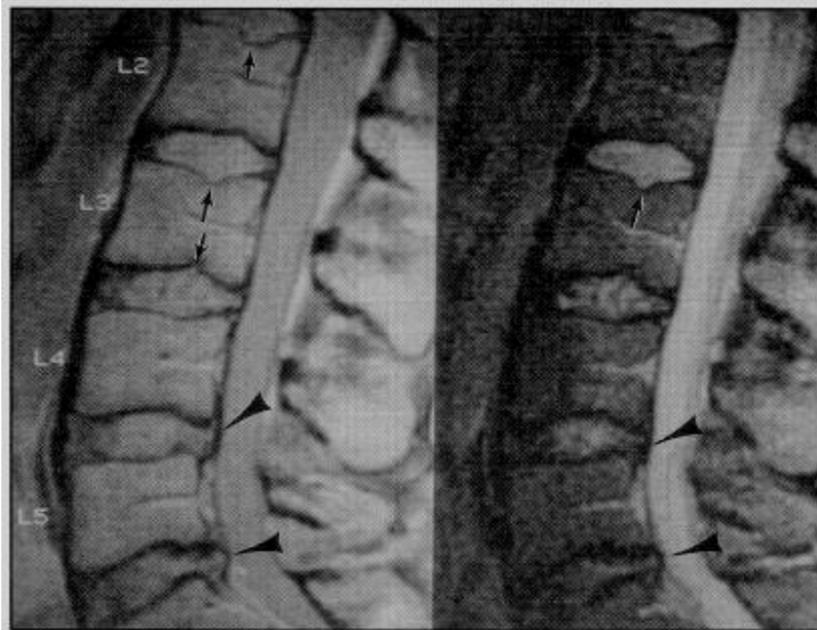
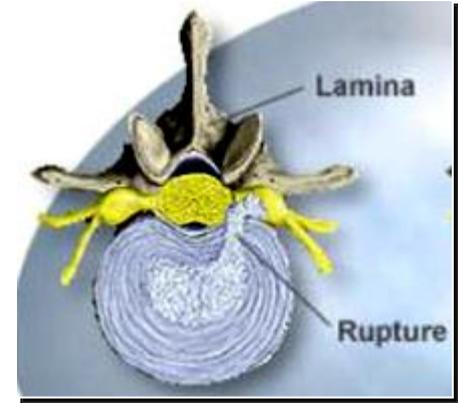
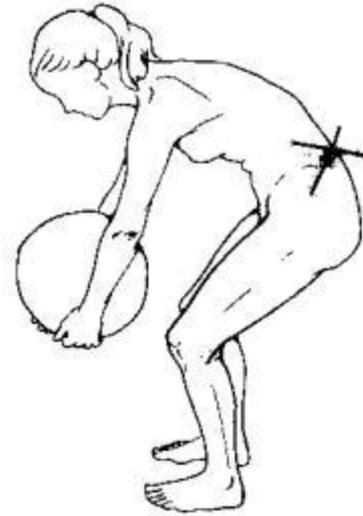
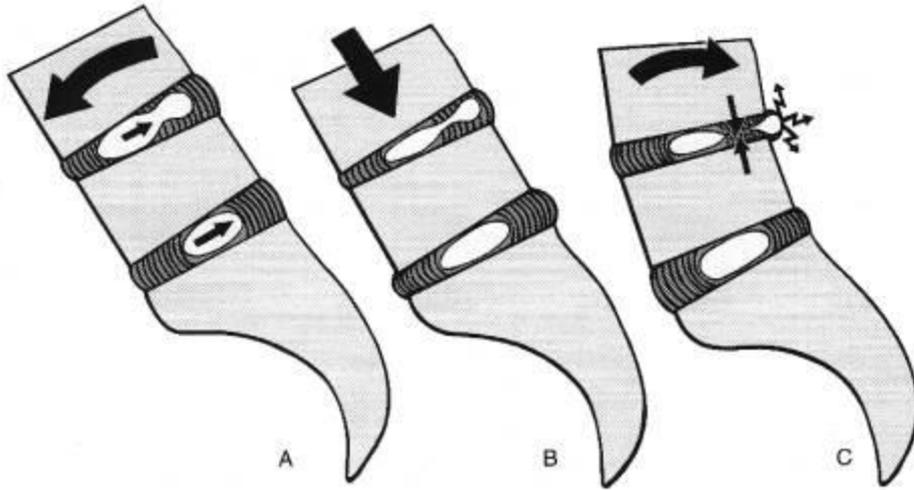


50

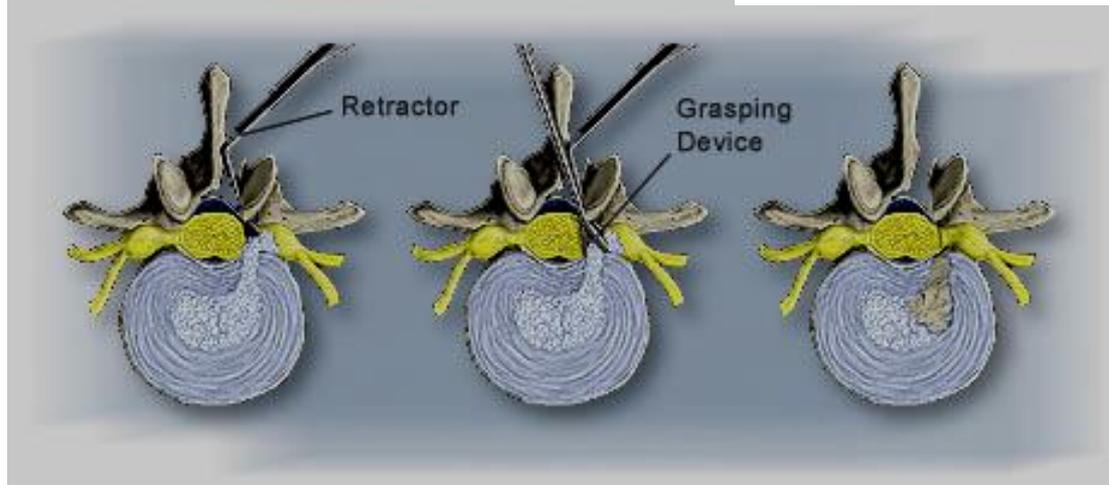
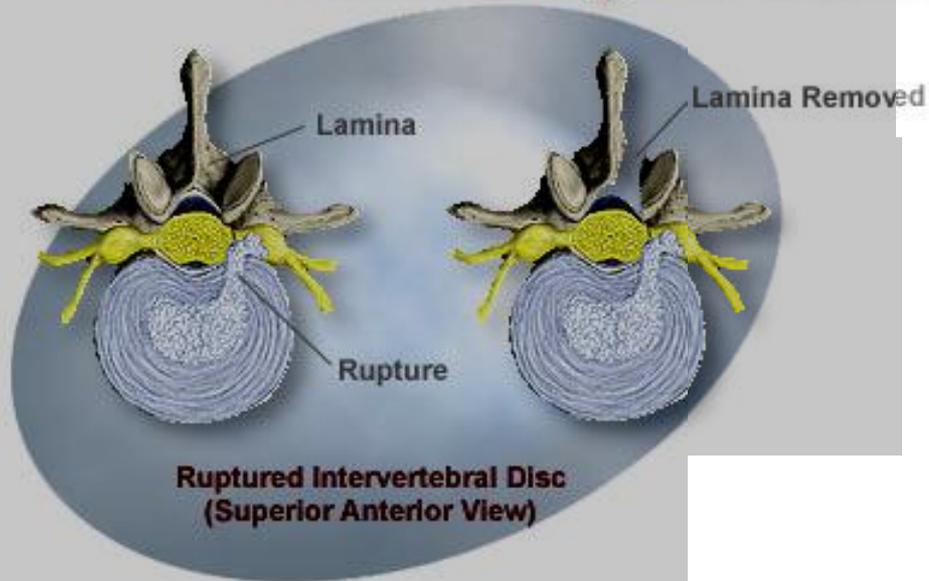


49

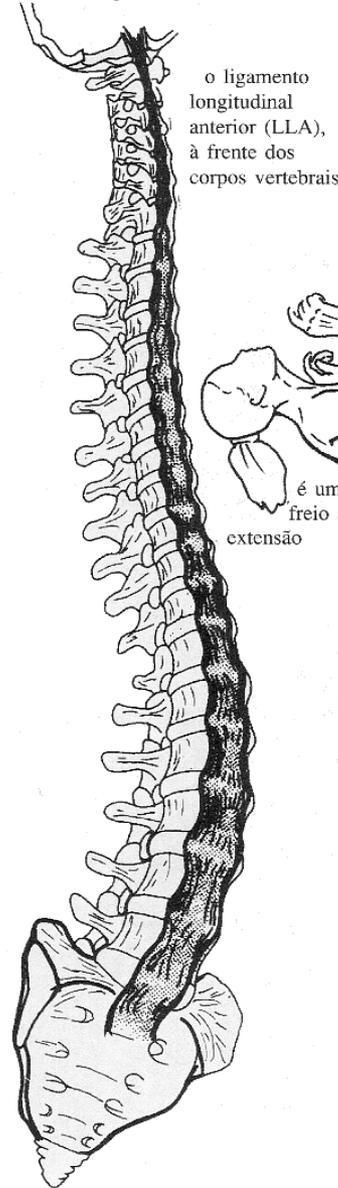
Herniação (protusão) do núcleo pulposo



# Laminotomy/Microdiscectomy



Três destes ligamentos são como bandas contínuas que vão do occipital ao sacro:



o ligamento longitudinal anterior (LLA), à frente dos corpos vertebrais

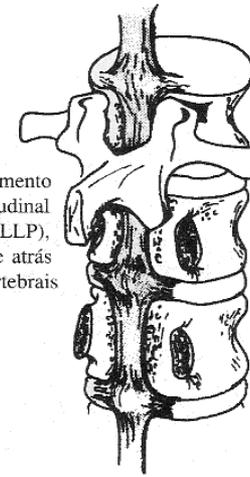
o ligamento longitudinal posterior (LLP), situado exatamente atrás dos corpos vertebrais



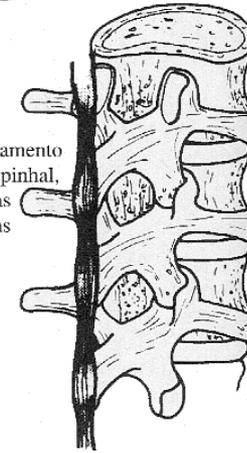
é um freio à extensão



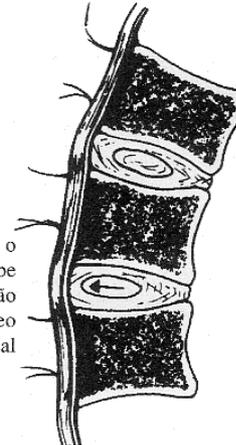
os dois últimos são freios à flexão



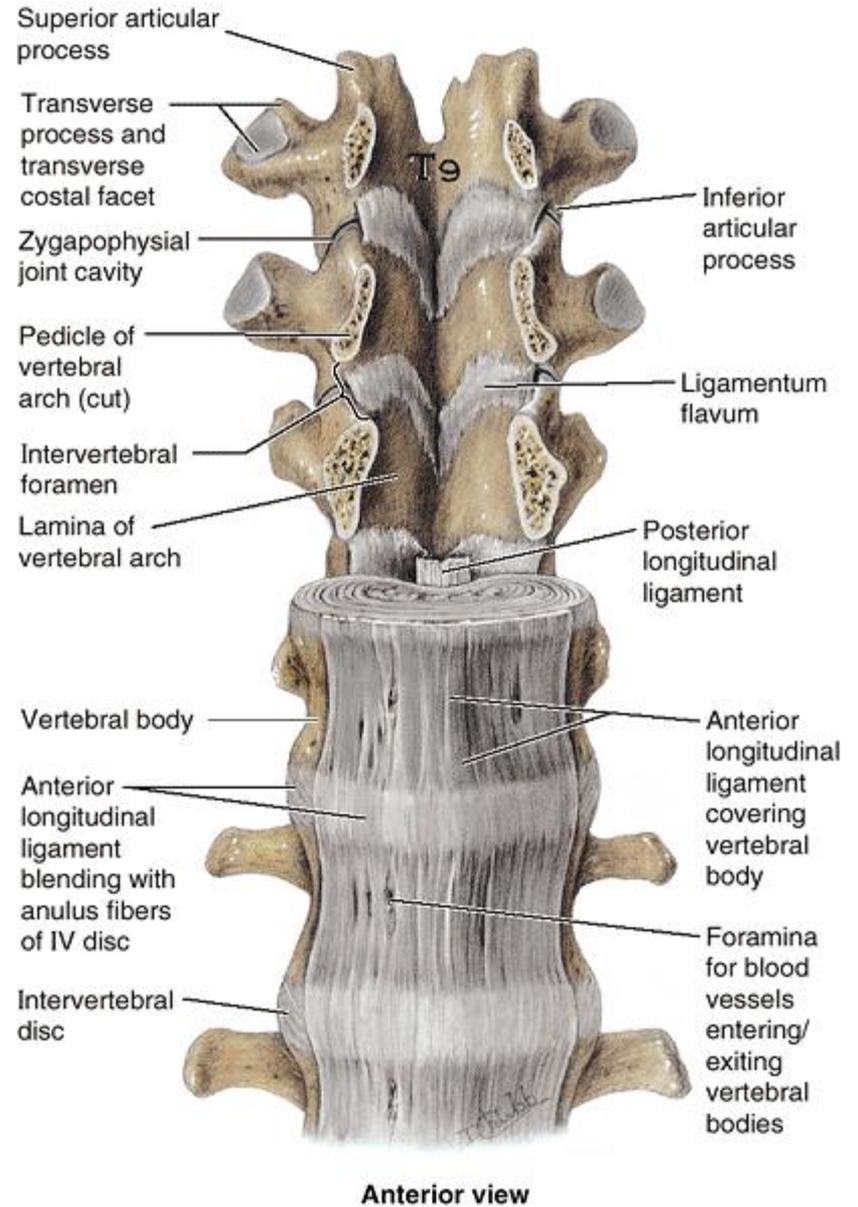
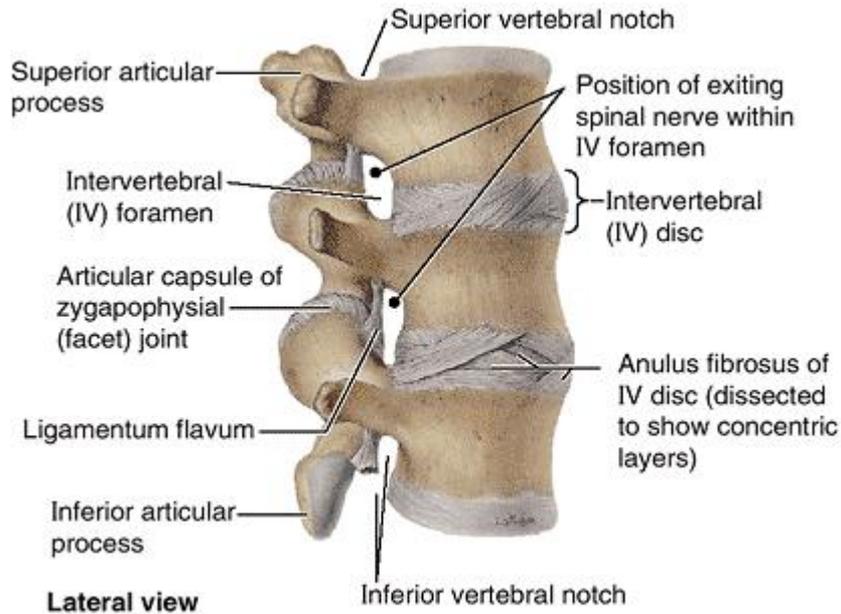
o ligamento supra-espinhal, situado atrás das espinhas



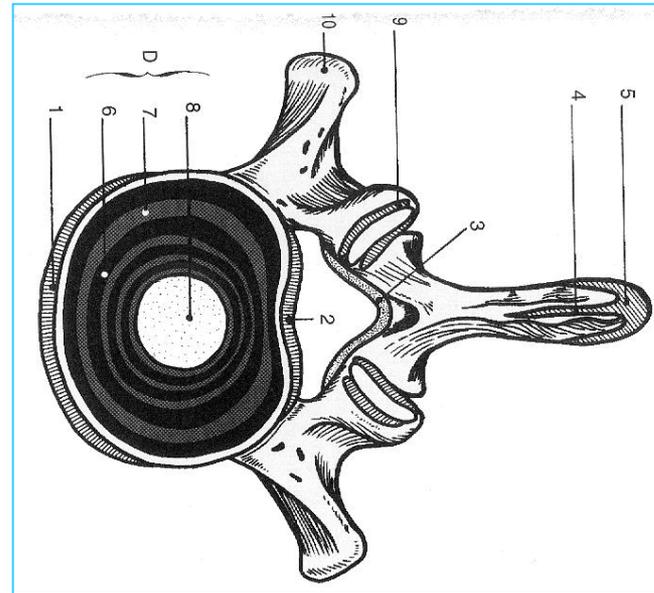
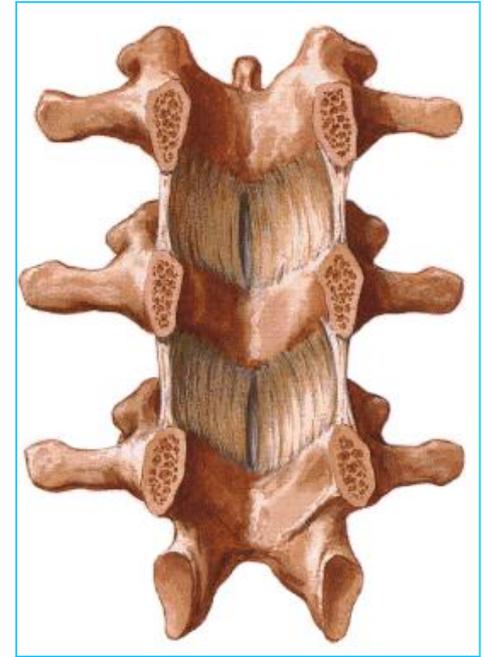
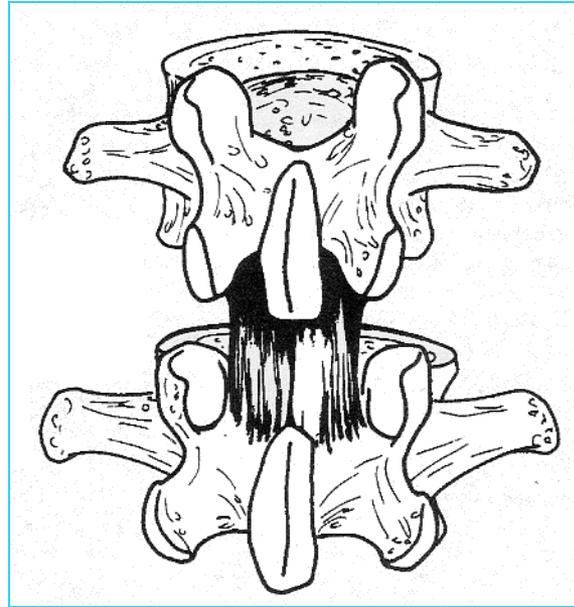
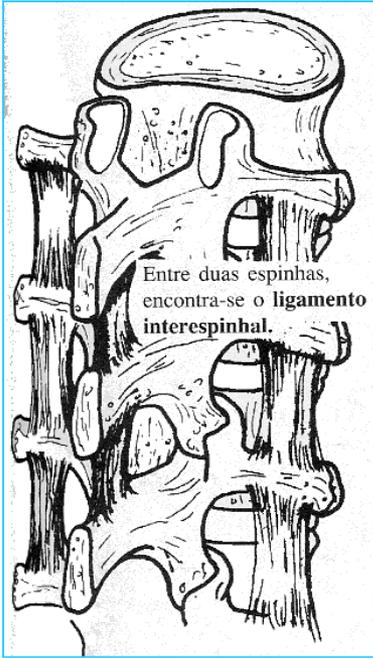
na flexão, o LLP recebe uma pressão do núcleo discal

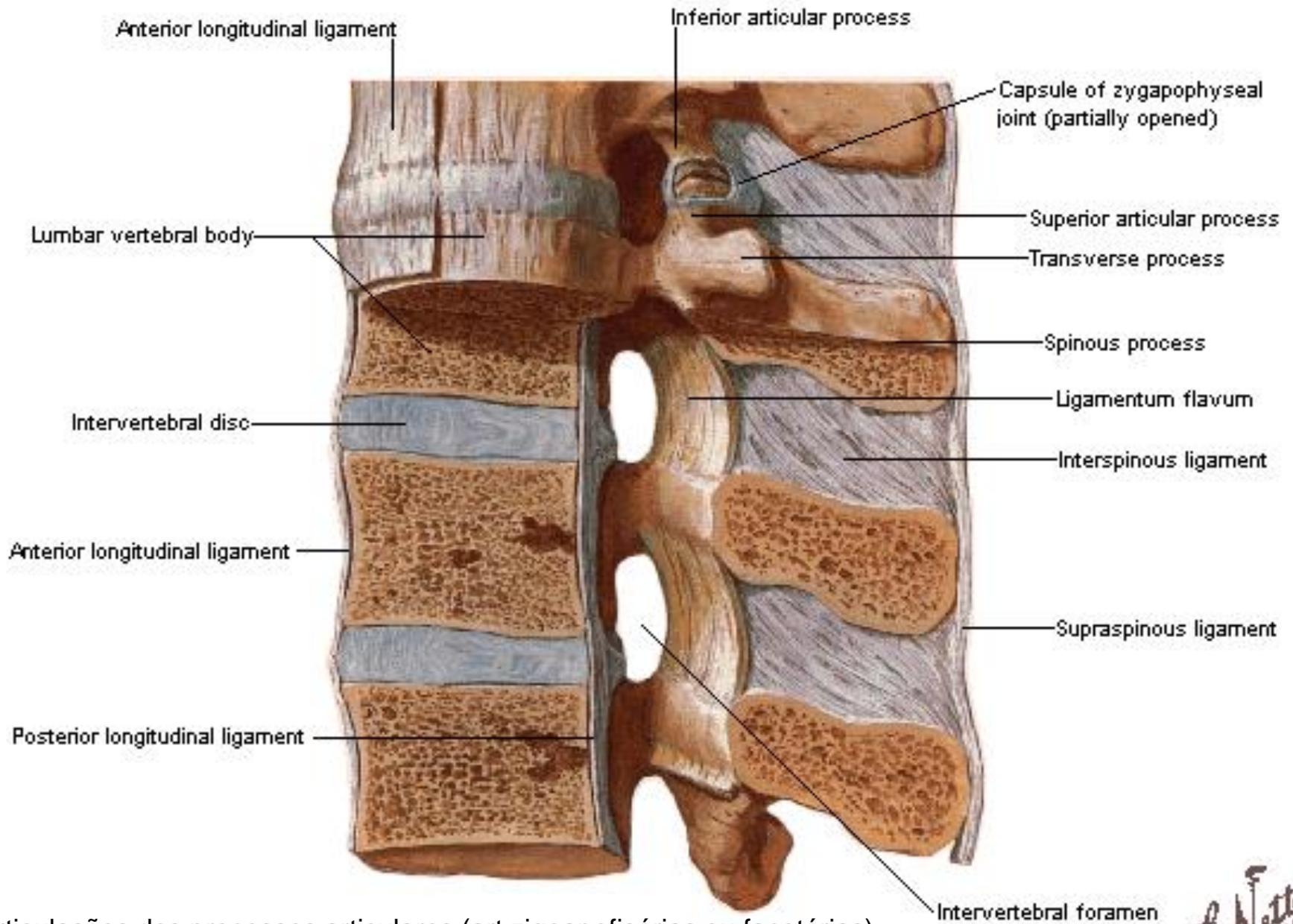


- Rico em terminações nociceptivas
- Ajuda a evitar ou redirecionar a hérniação post do núcleo pulposo
- Se insere principalmente no discos IV

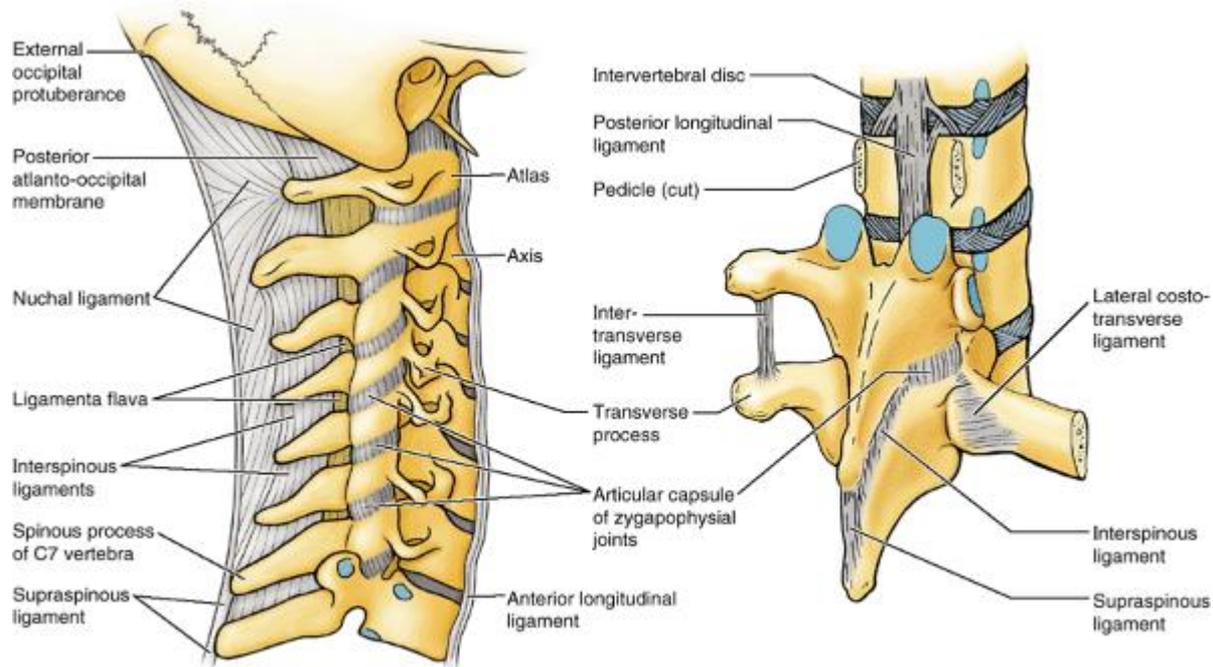


**Anterior view**



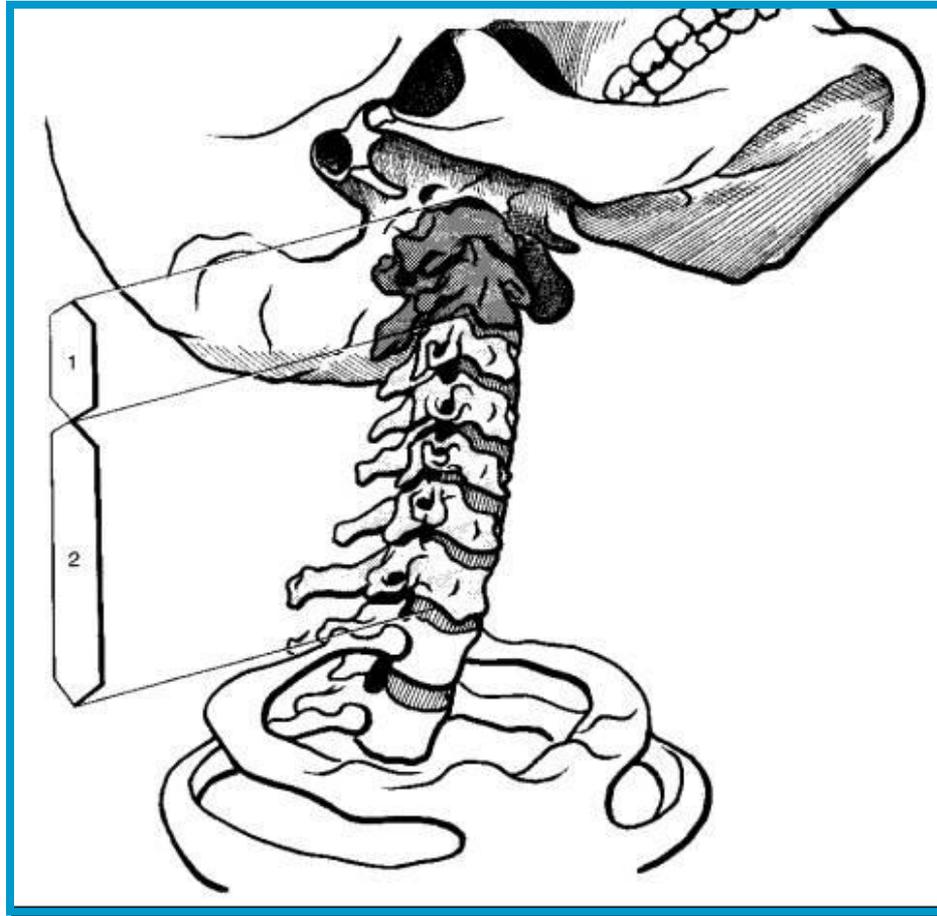


Articulações dos processos articulares (art zigoapofisárias ou facetárias)  
 Mantêm o alinhamento da CV, determinam os tipos de movimentos permitidos

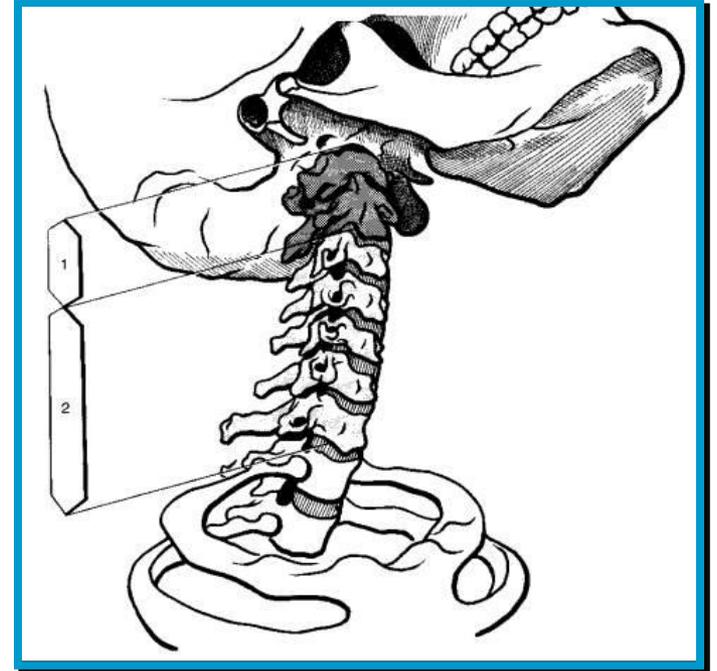


**(A) Right lateral view**

**(B) Right posterior oblique view**

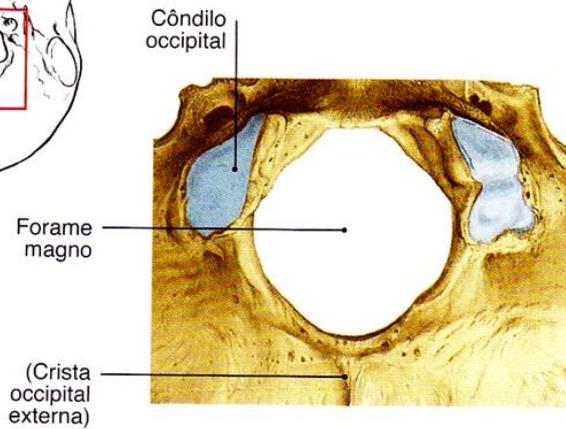
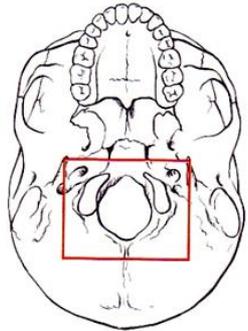


## A Coluna Cervical: Atlas (C1)

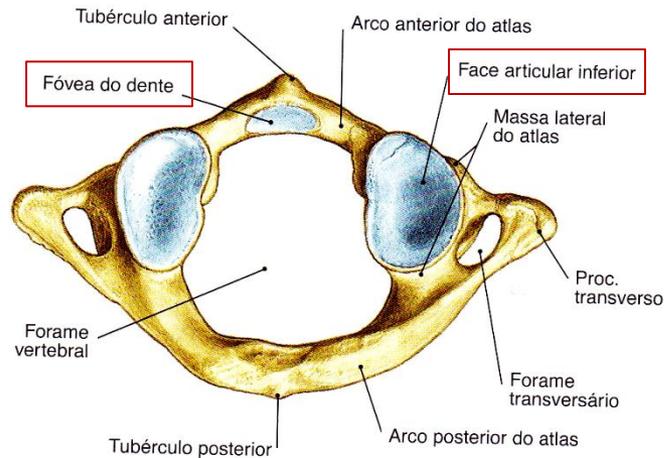
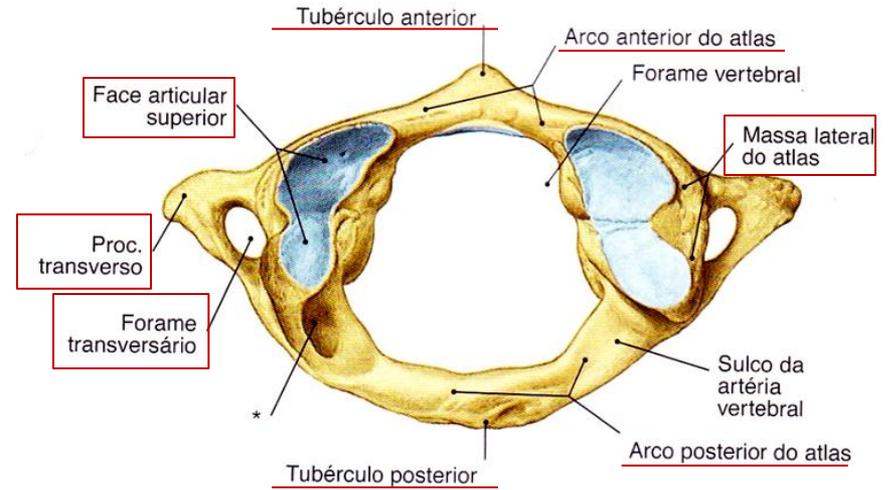


Em homenagem ao personagem da mitologia grega, ATLAS, que sustentava o peso do mundo em seus ombros

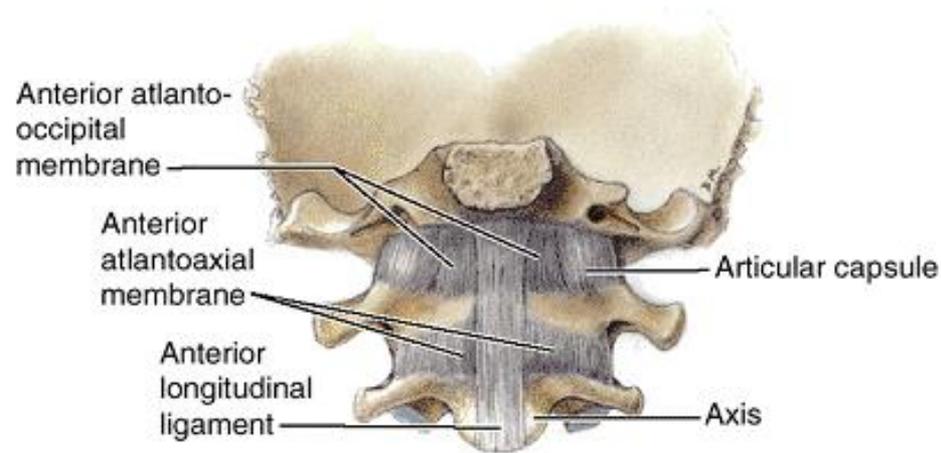
# A Coluna Cervical: Atlas (C1)



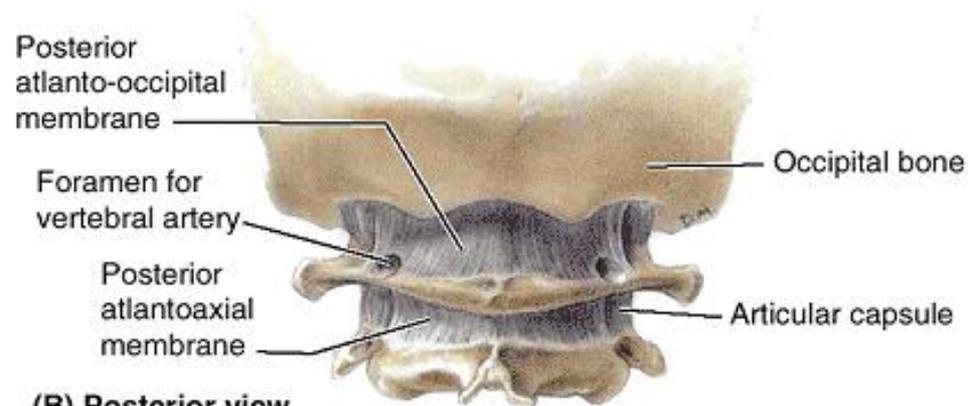
Vista superior



Vista inferior



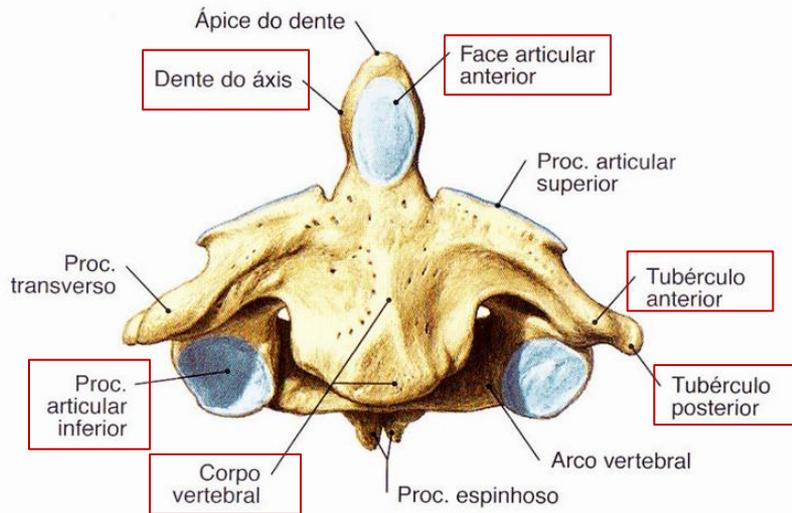
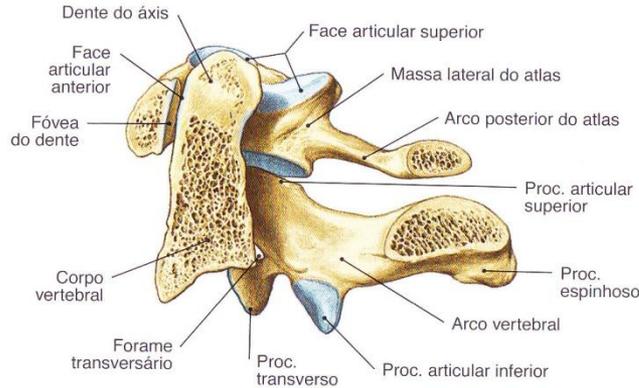
**(A) Anterior view**



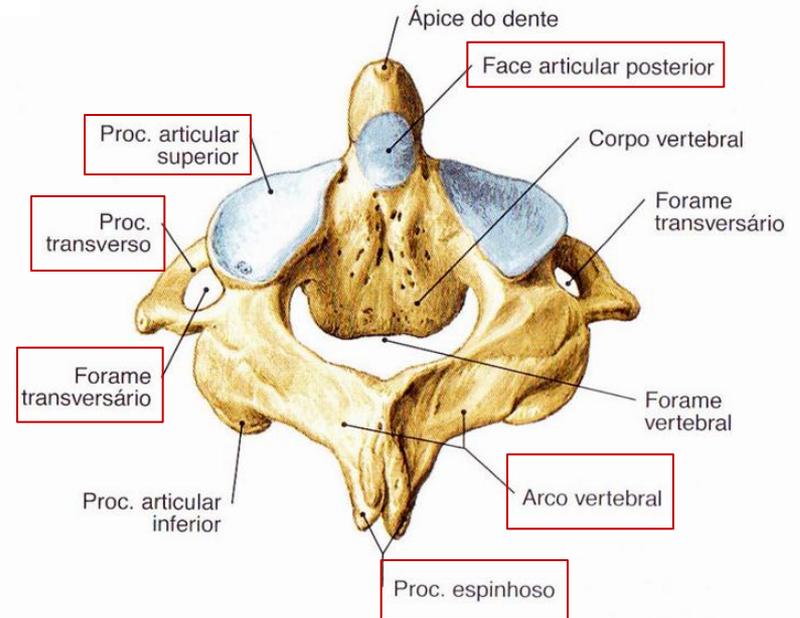
**(B) Posterior view**

Flexão e extensão +++  
Rotação +  
Inclinação lateral +

# A Coluna Cervical: Áxis (C2)

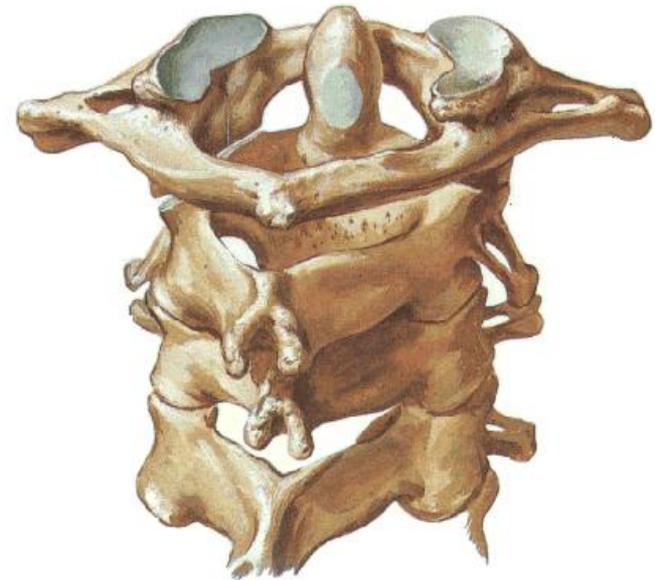
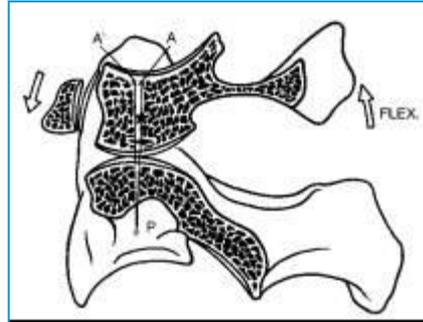
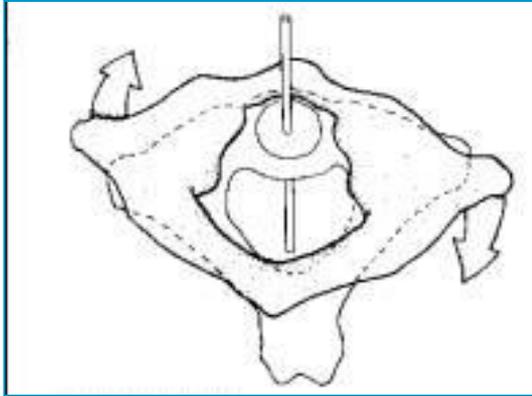


Vista anterior

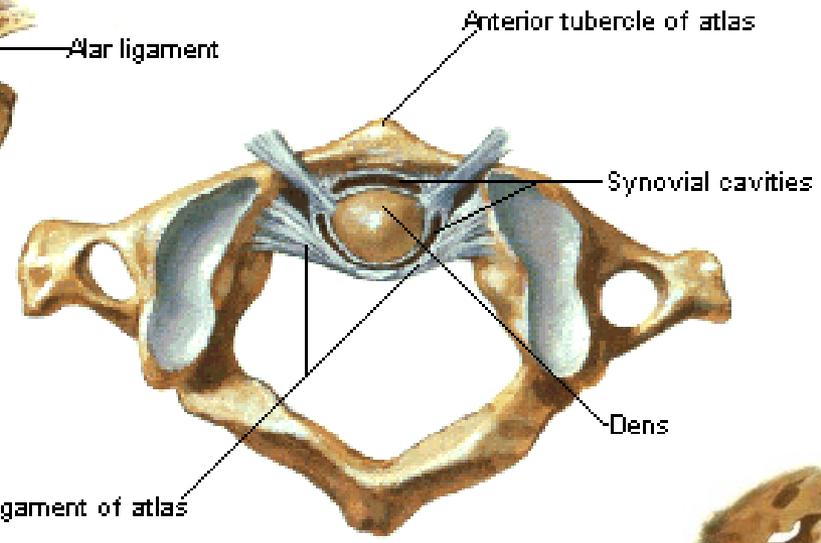
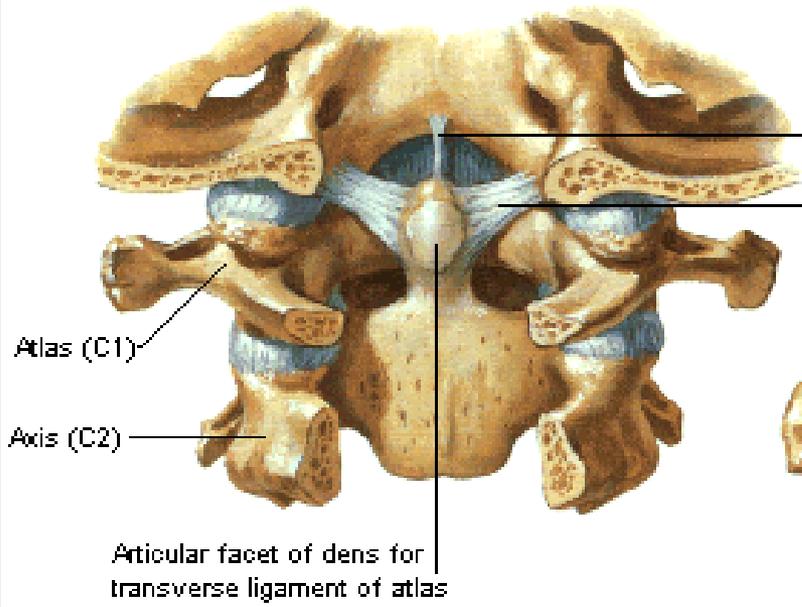


Vista posterior

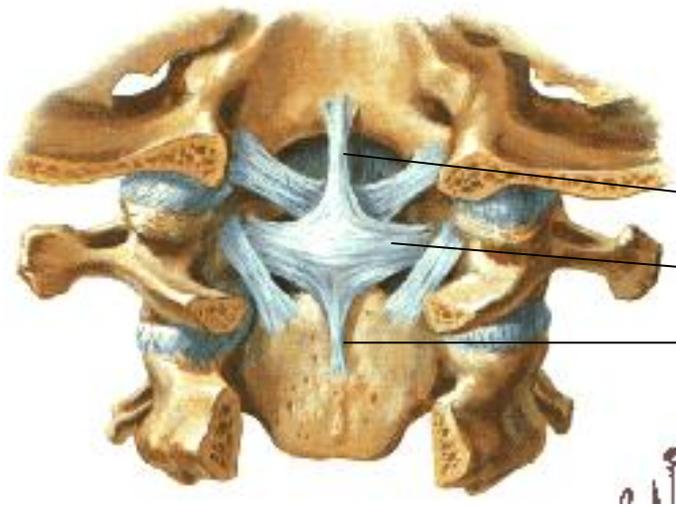
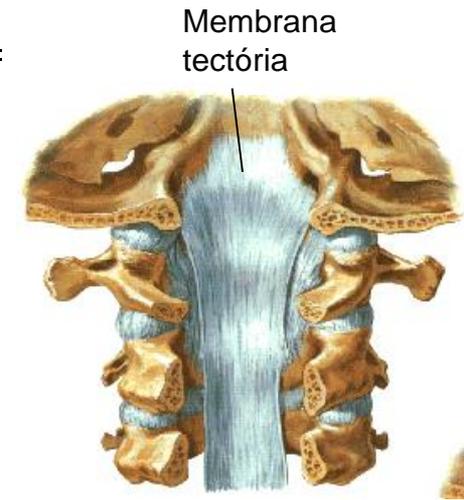
Massas laterais



# Articulação Atlantoaxial



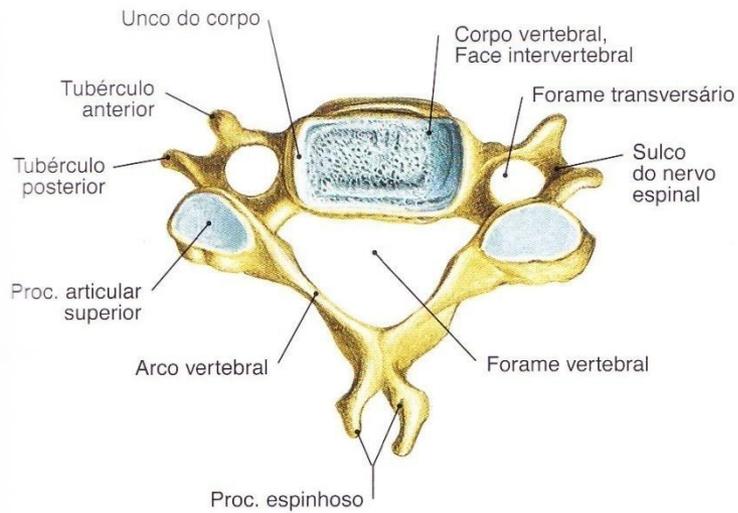
Median atlantoaxial joint:  
superior view



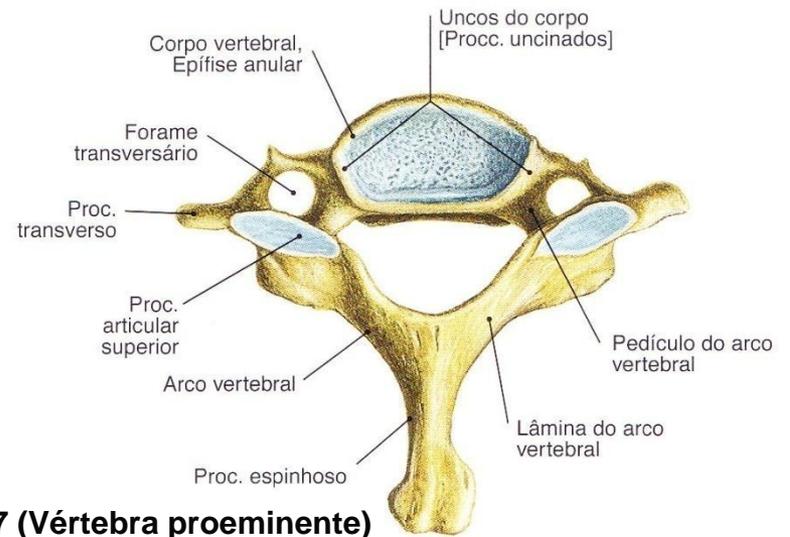
Fascículo longitudinal superior  
Lig tranverso do atlas  
Fascículo longitudinal inferior

Lig cruciforme

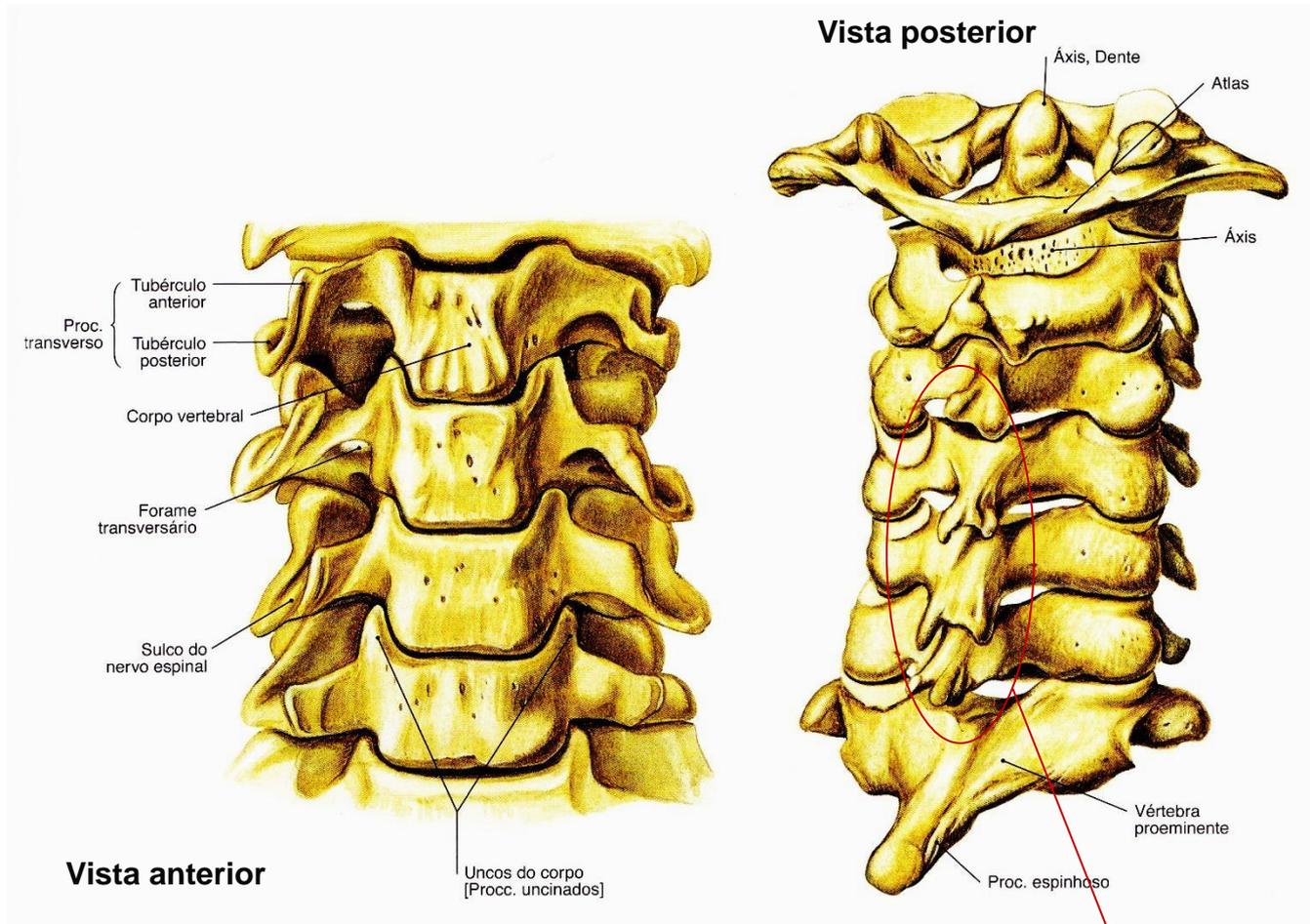
LLP



**C5**

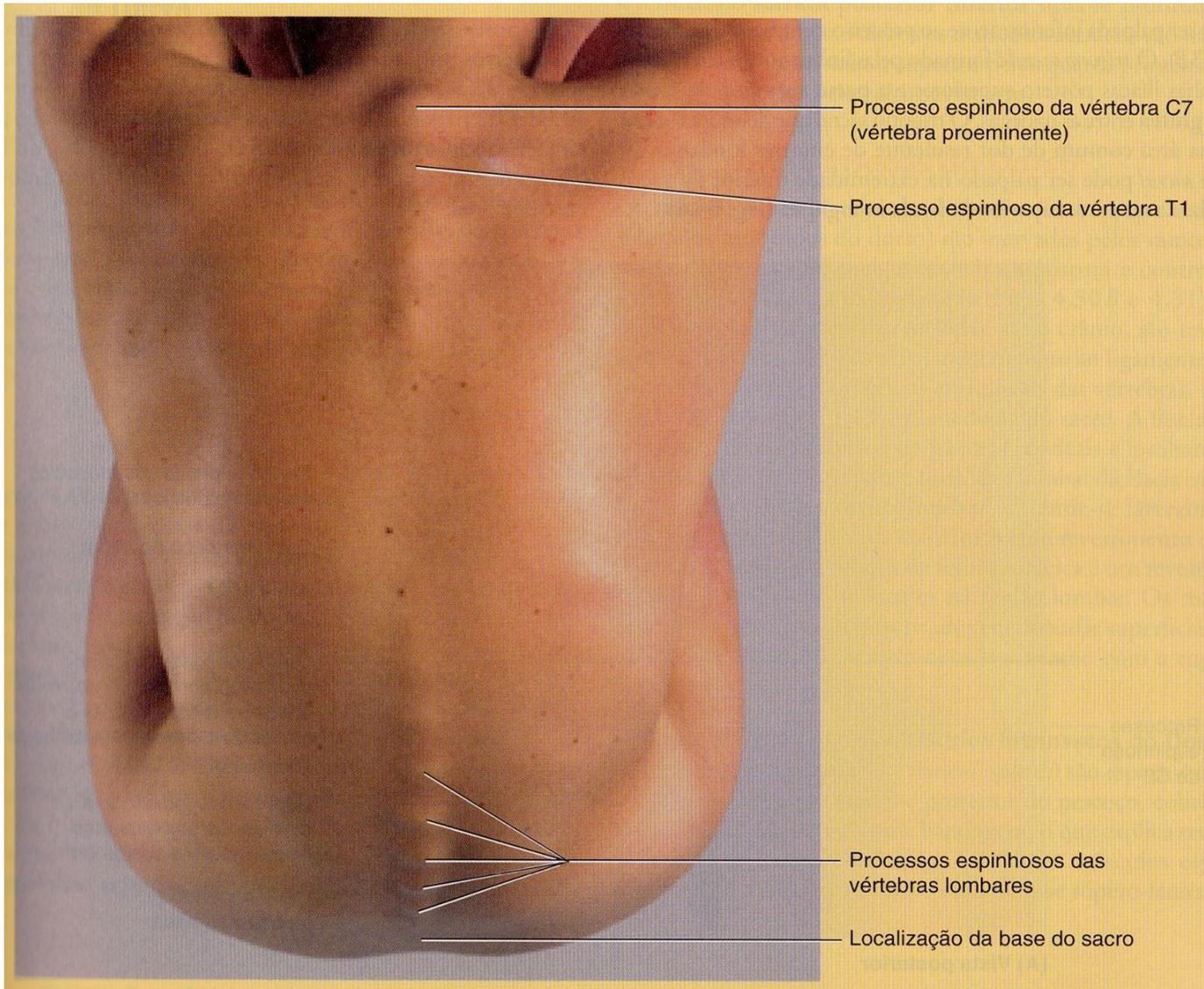


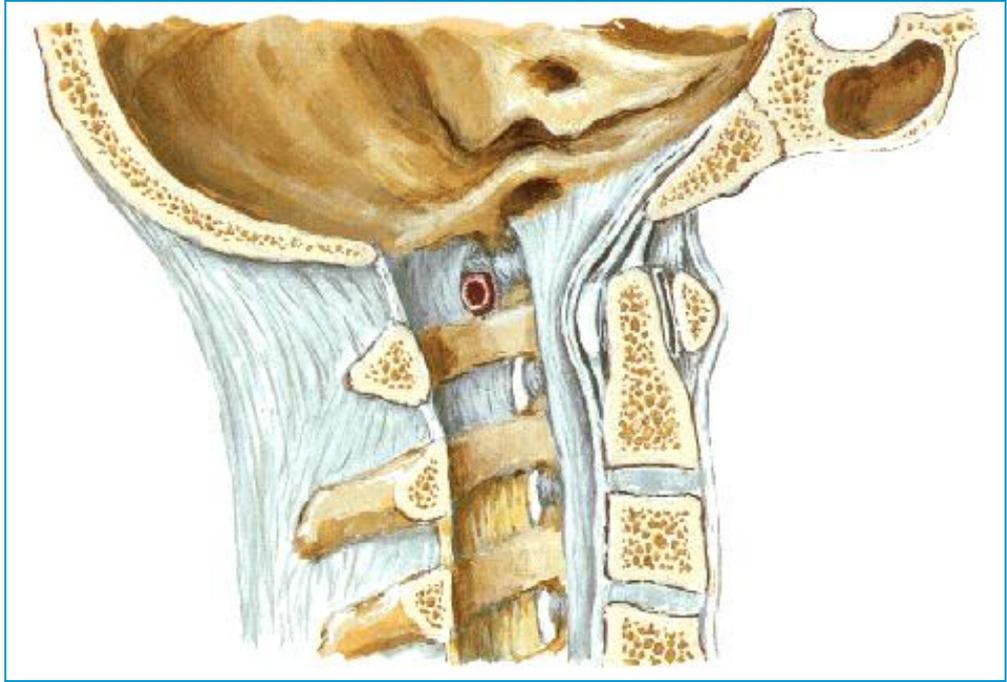
**C7 (Vértebra proeminente)**



- flexão/extensão** +++
- rotação** +++
- inclinação lateral** +++

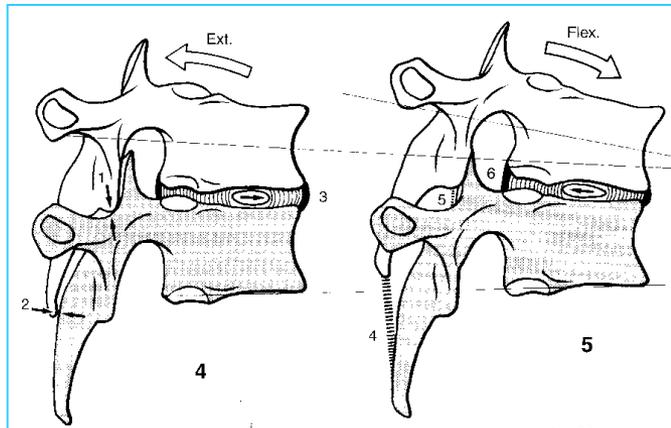
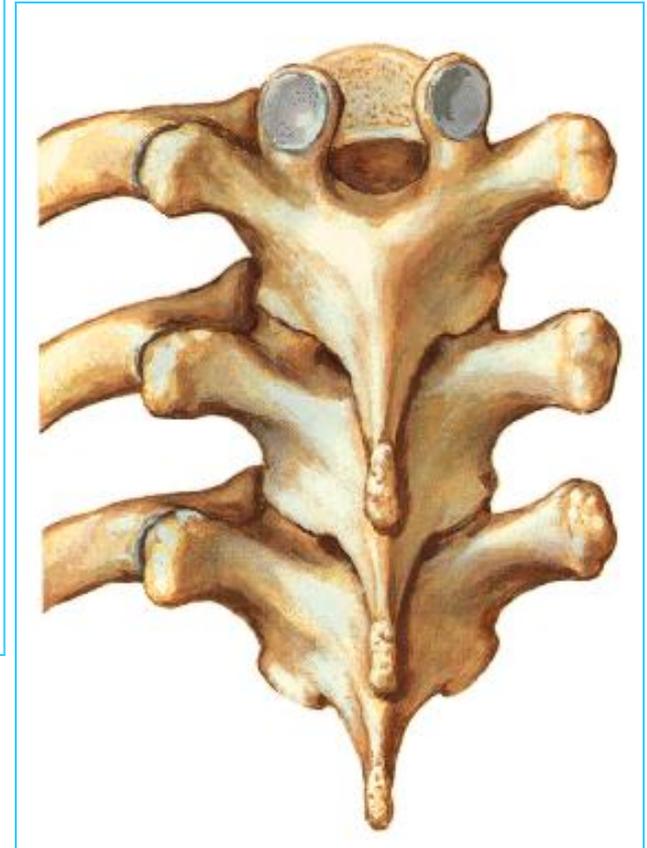
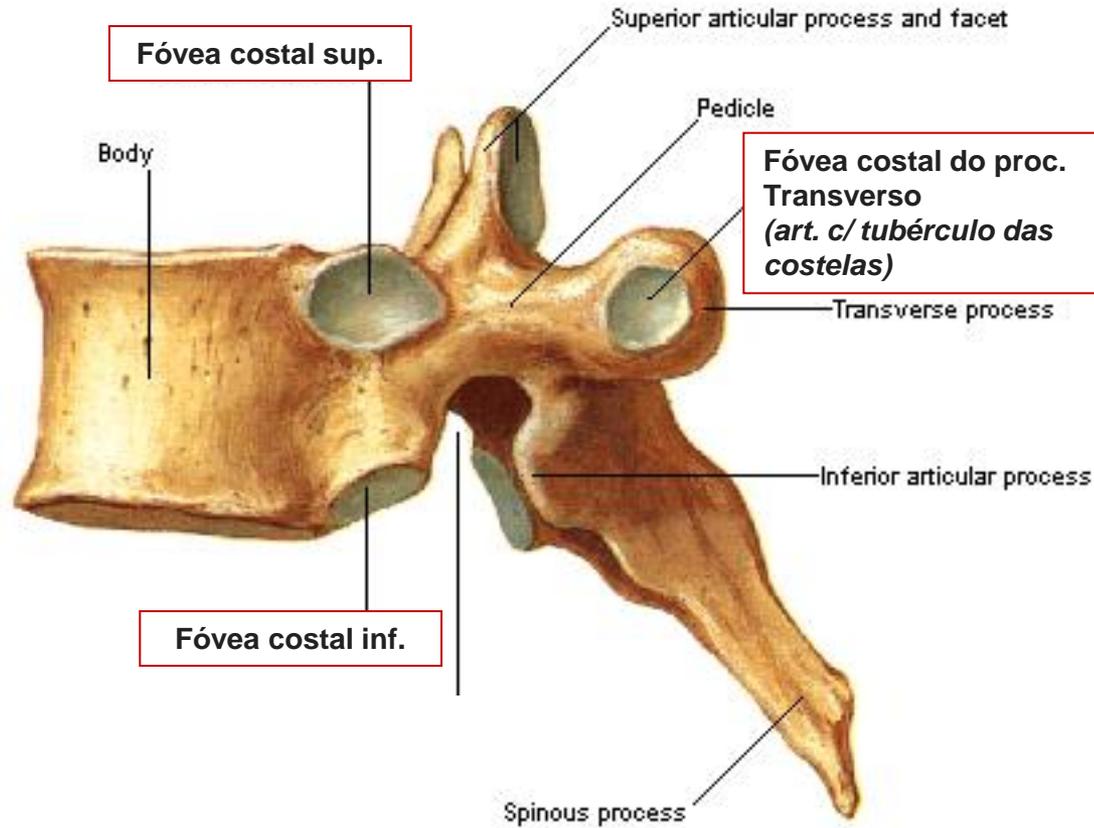
Processos espinhosos bífidos (C3-C6)





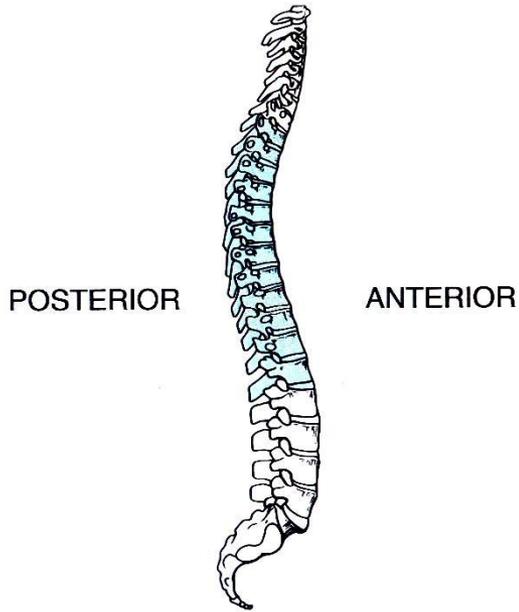
Artéria  
Vertebral

# As Vértébras Torácicas

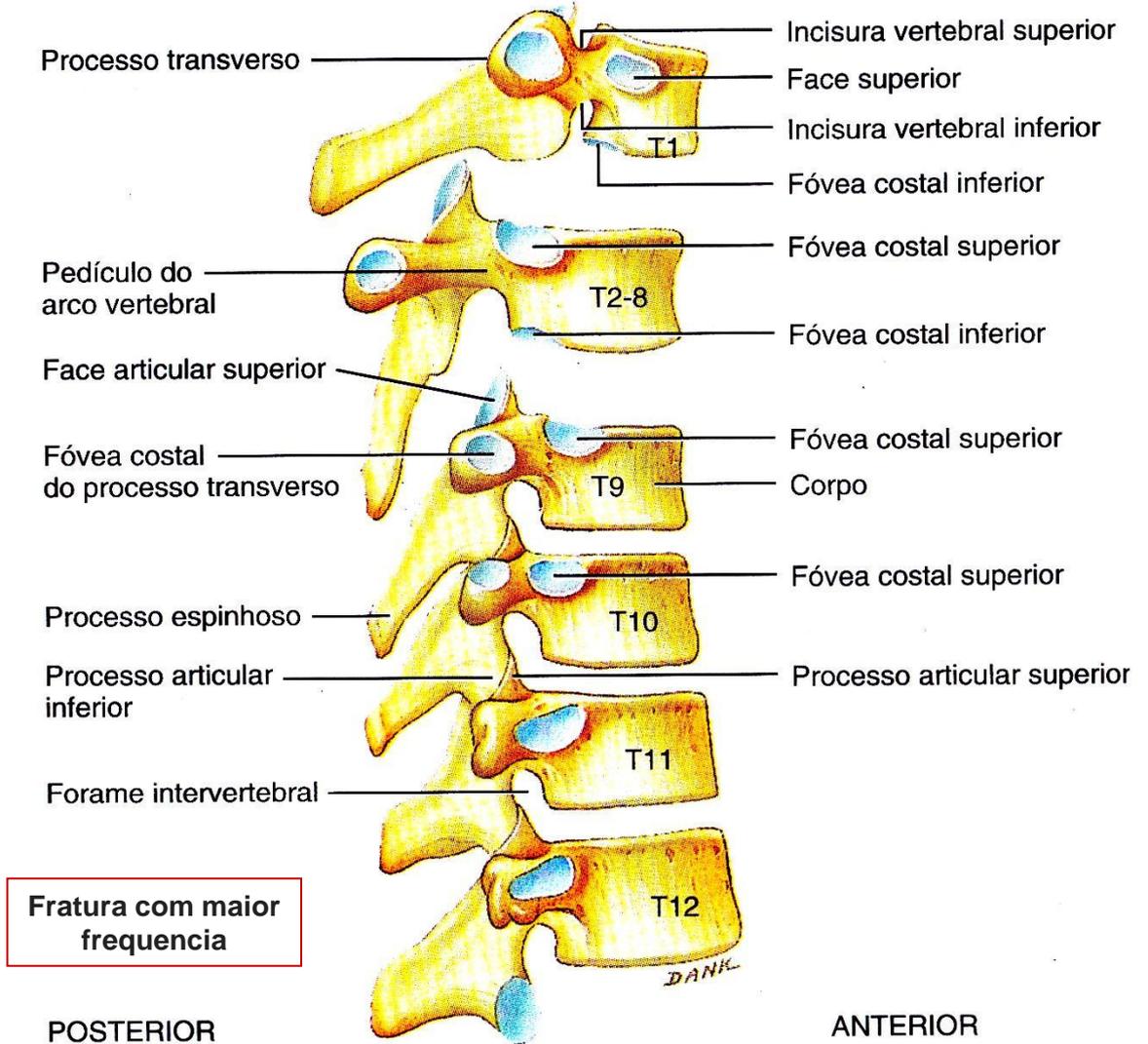


- flexão/extensão +
- rotação +++
- inclinação lateral +

# As Vértébras Torácicas

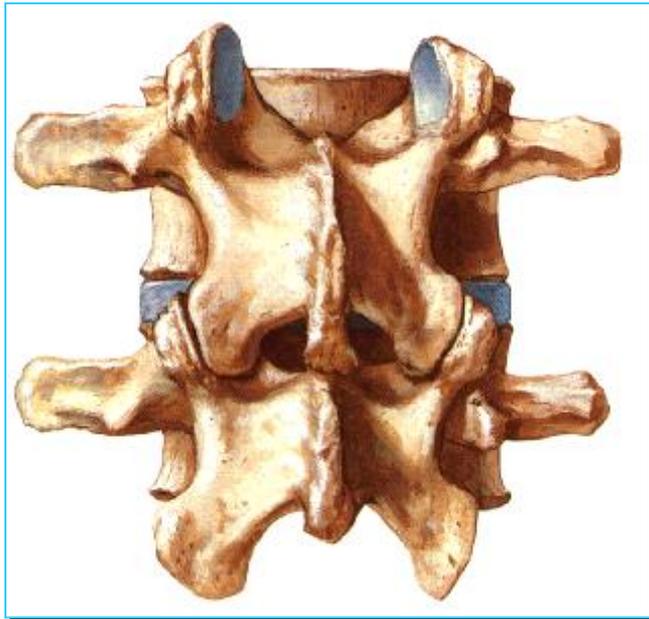
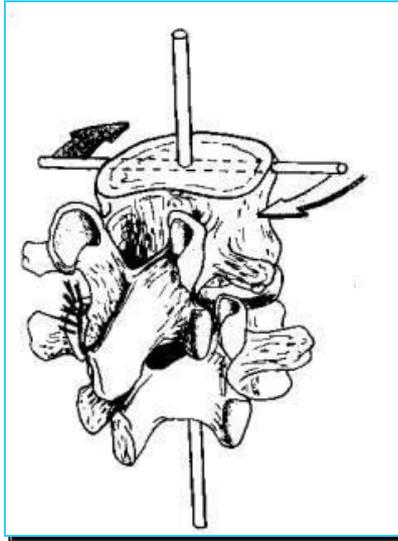
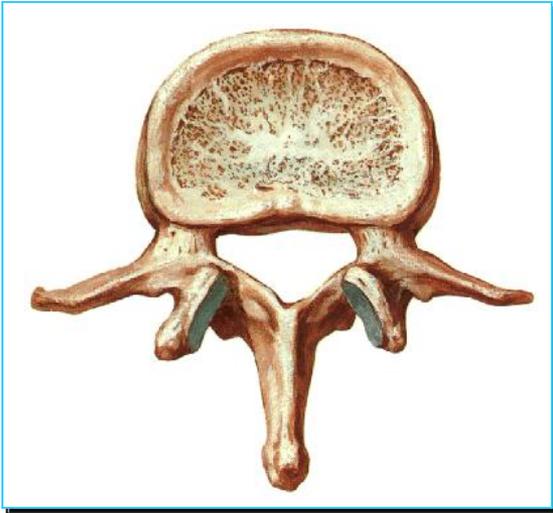


Localização das vértebras torácicas

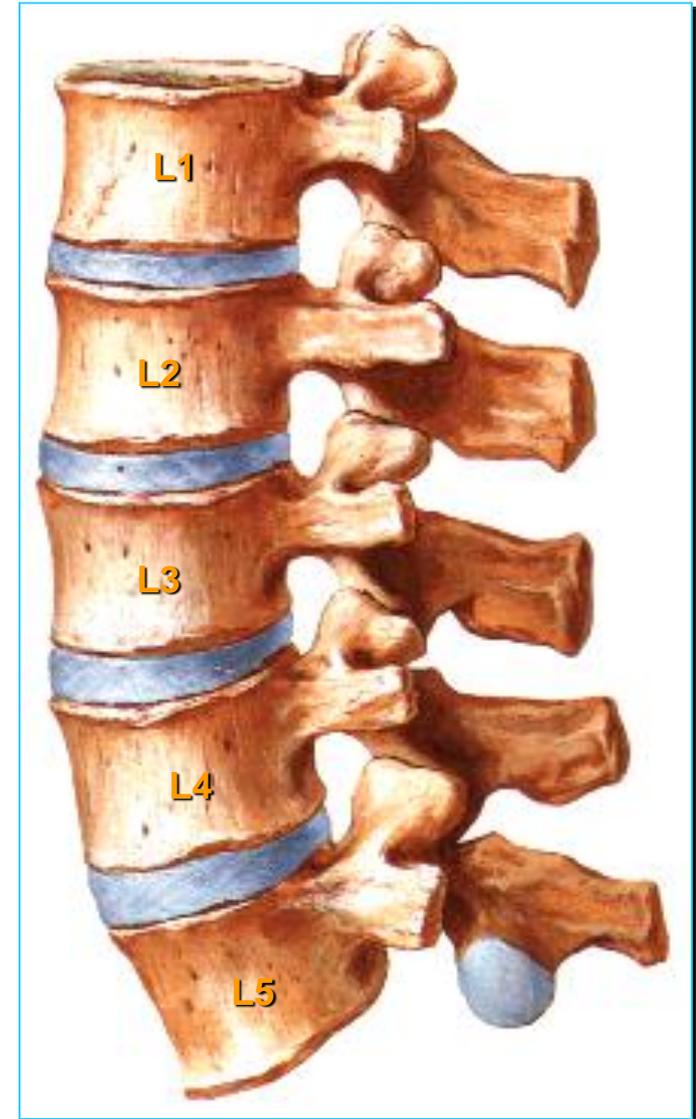


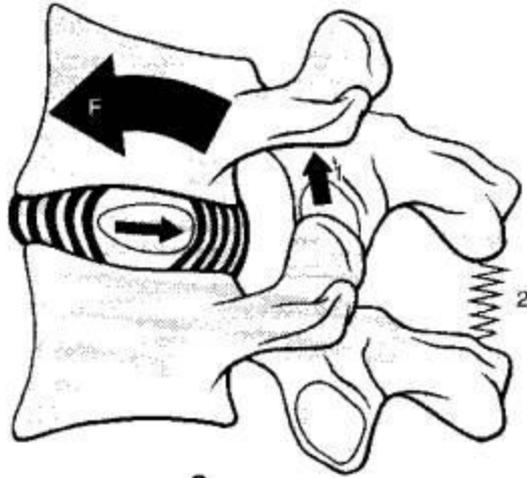
Vista lateral direita de diversas vértebras torácicas articuladas

## As Vértèbras Lombares

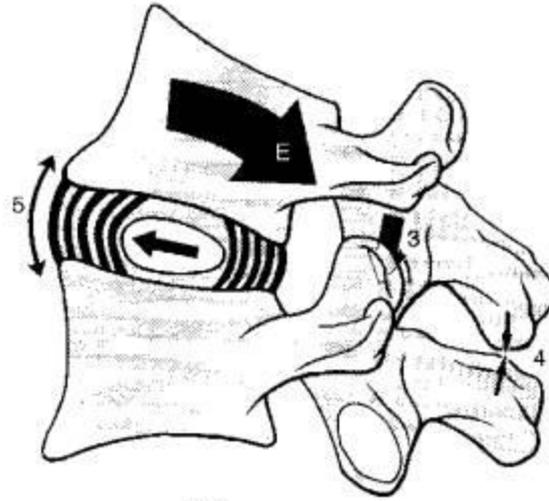


- flexão/extensão +++
- rotação +
- inclinação lateral +++

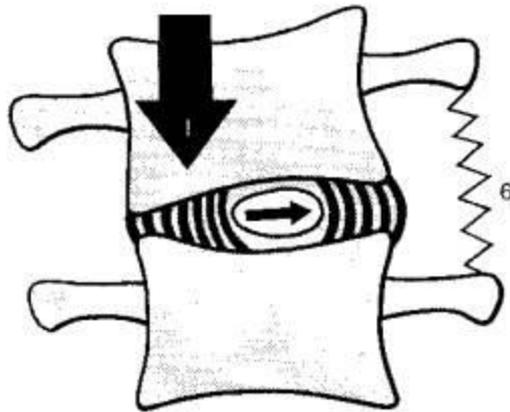




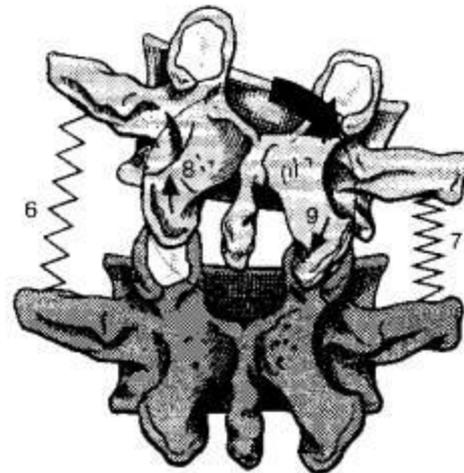
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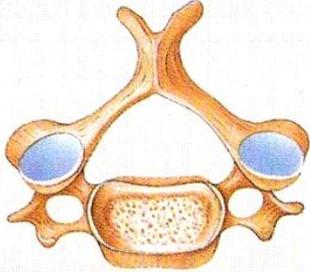
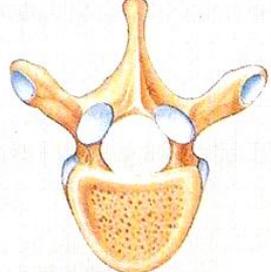
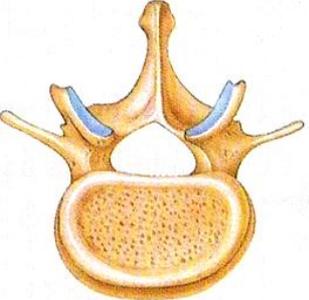


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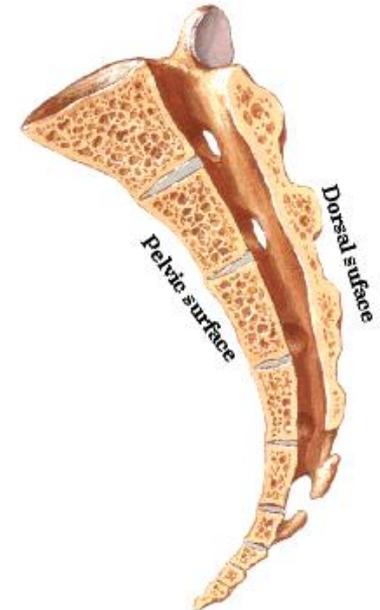
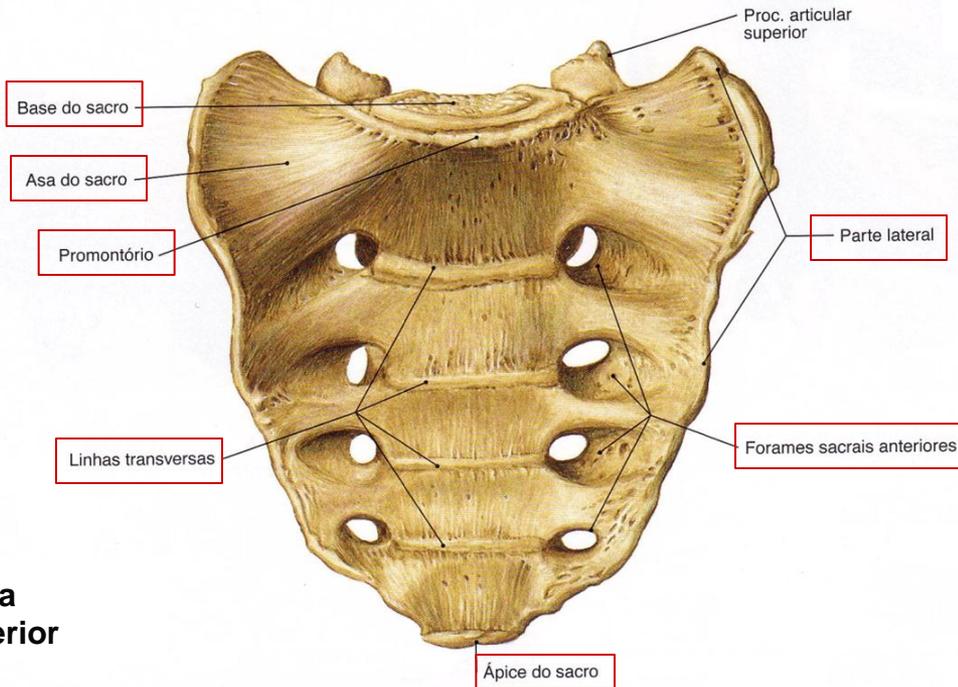
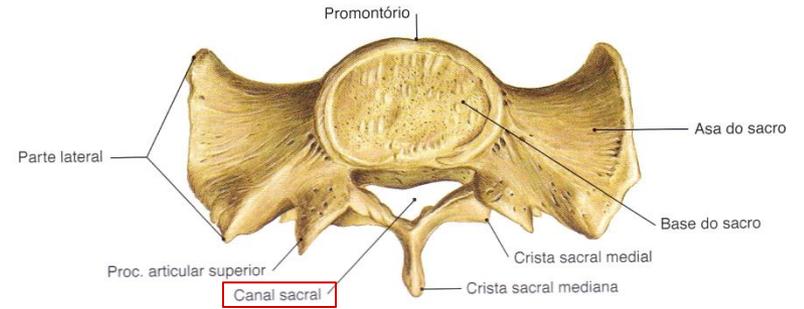
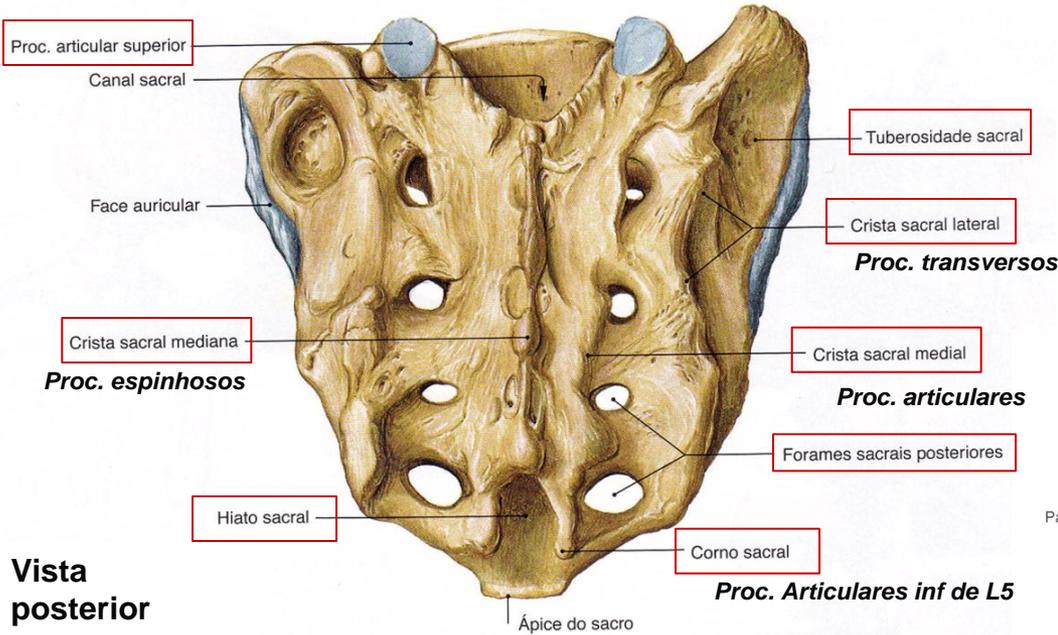
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**QUADRO 7.5 COMPARAÇÃO DAS PRINCIPAIS CARACTERÍSTICAS ESTRUTURAIS DAS VÉRTEBRAS CERVICAIS, TORÁCICAS E LOMBARES**

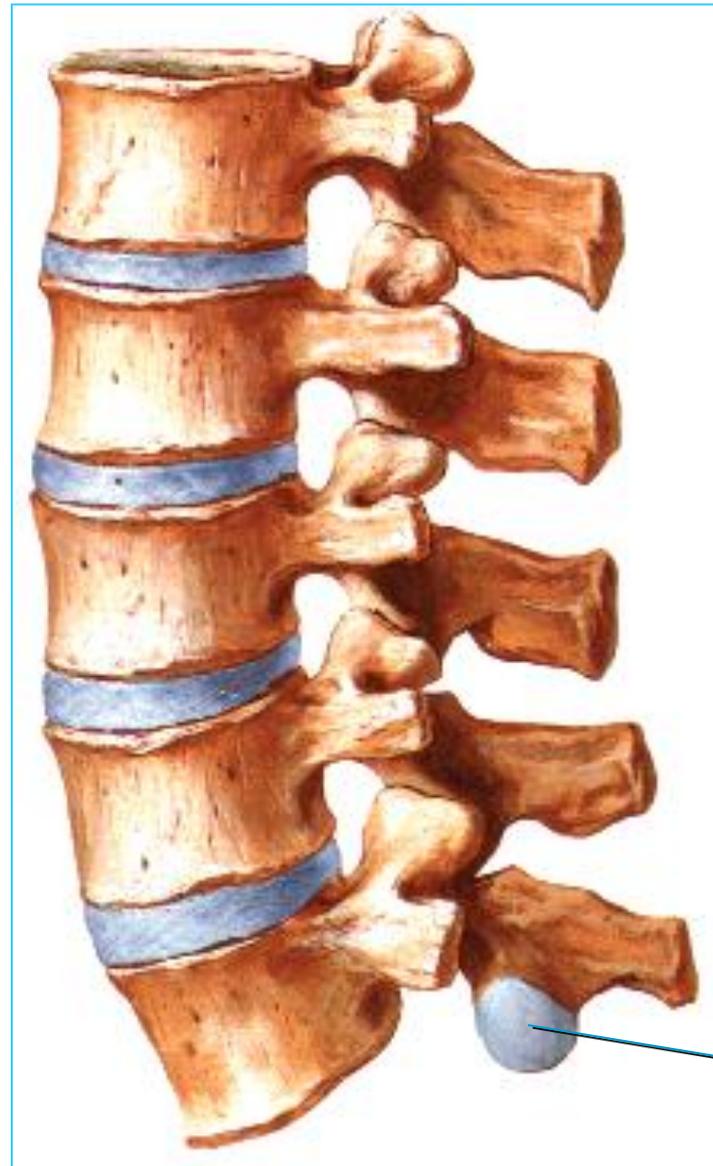
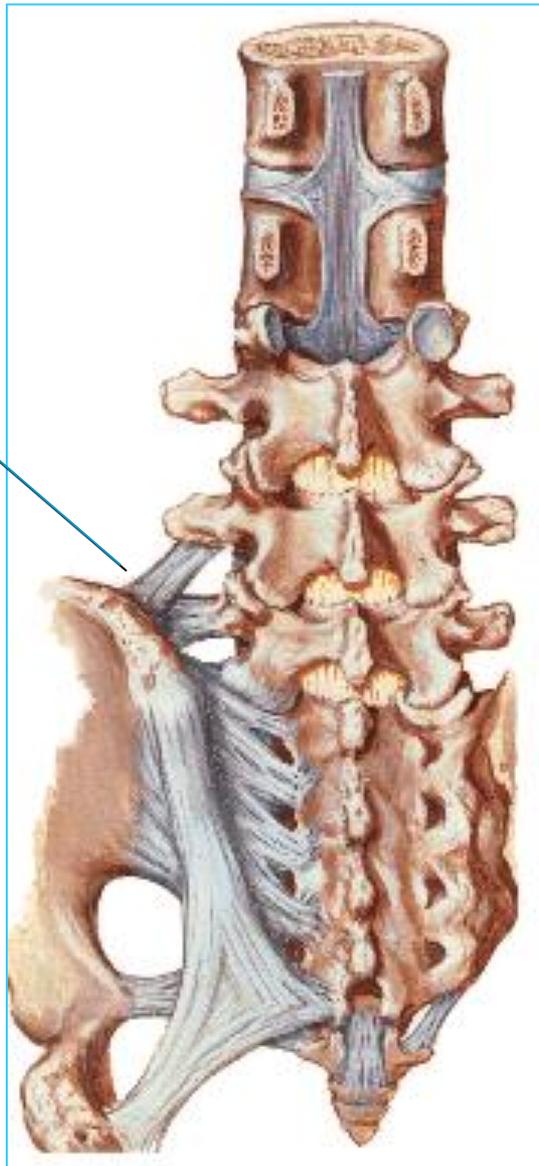
CARACTERÍSTICAS	CERVICAL	TORÁCICA	LOMBAR
Estrutura geral			
Tamanho	Pequeno	Grande	O maior
Forames	Um vertebral e dois transversários	Um vertebral	Um vertebral
Processos espinhosos	Delgado e freqüentemente bífido (C2-C6)	Longo e razoavelmente espesso (a maioria projeta-se inferiormente)	Curto e rombo (projetam-se mais posteriormente do que inferiormente)
Processos transversos	Pequeno	Razoavelmente grande	Grandes e rombóides
Face articular para as costelas	Ausente	Presentes	Ausentes
Direção das faces articulares <i>Superior</i> <i>Inferior</i>	Póstero-superior Ântero-inferior	Póstero-lateral Ântero-medial	Medial Lateral
Tamanho dos discos intervertebrais	Espessos, se comparados ao tamanho dos corpos vertebrais	Finos, se comparados aos corpos vertebrais	Grandes e sólidos

**Fusão das cinco vértebras sacrais (S1-S5)**

- início entre 16-18 anos
- fusão ~30 anos

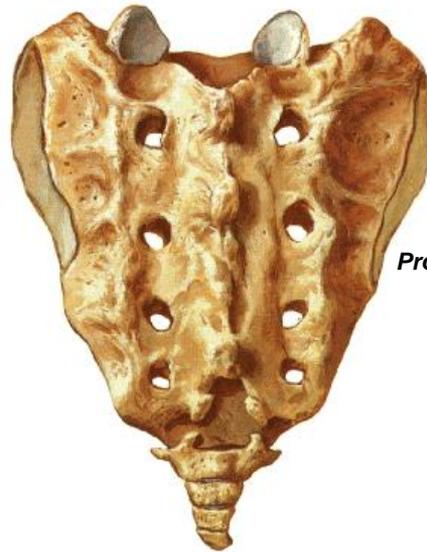
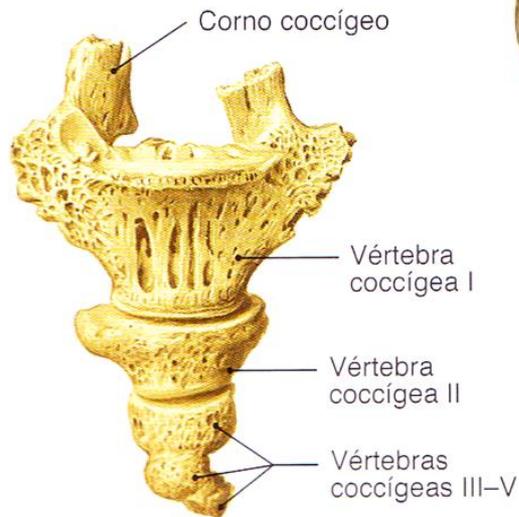


**Ligamentos iliolumbares**

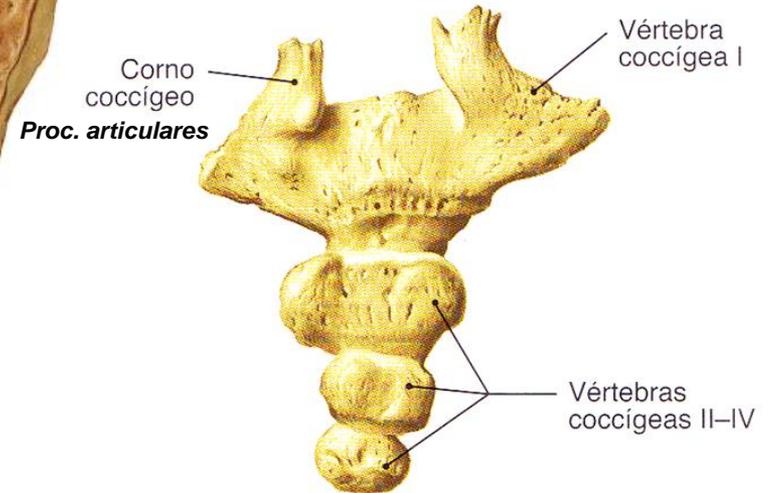


**Processo articular inferior**

Vista anterior

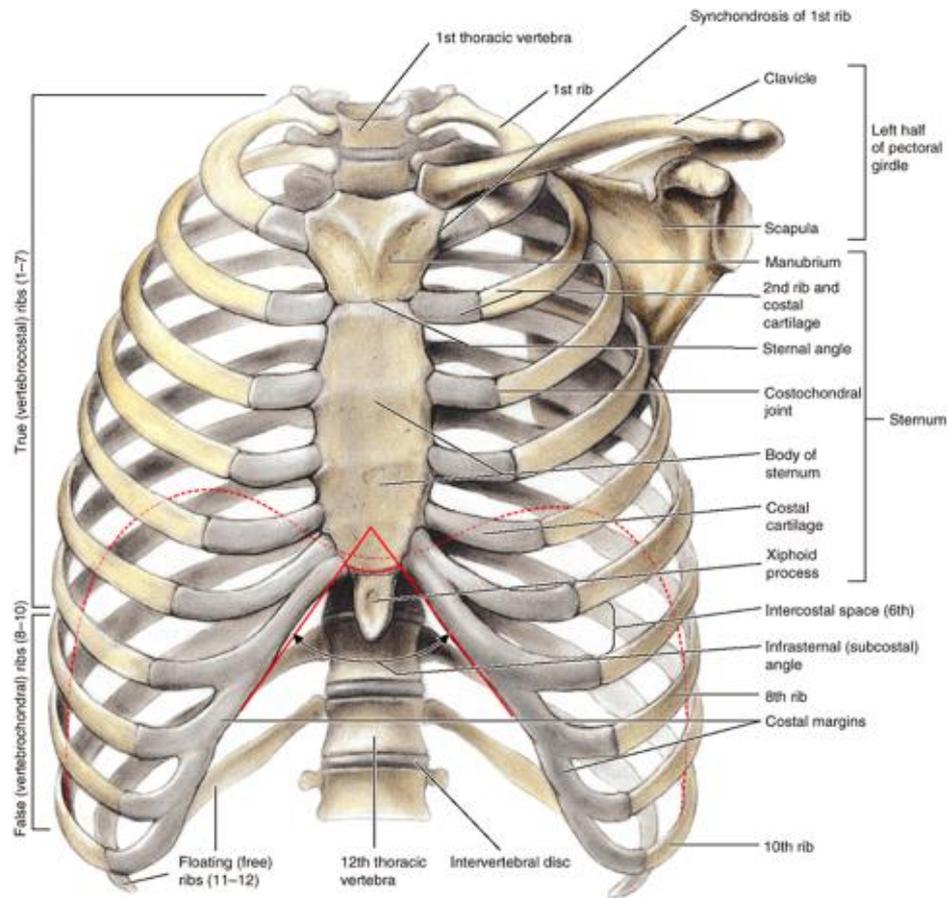


Vista posterior



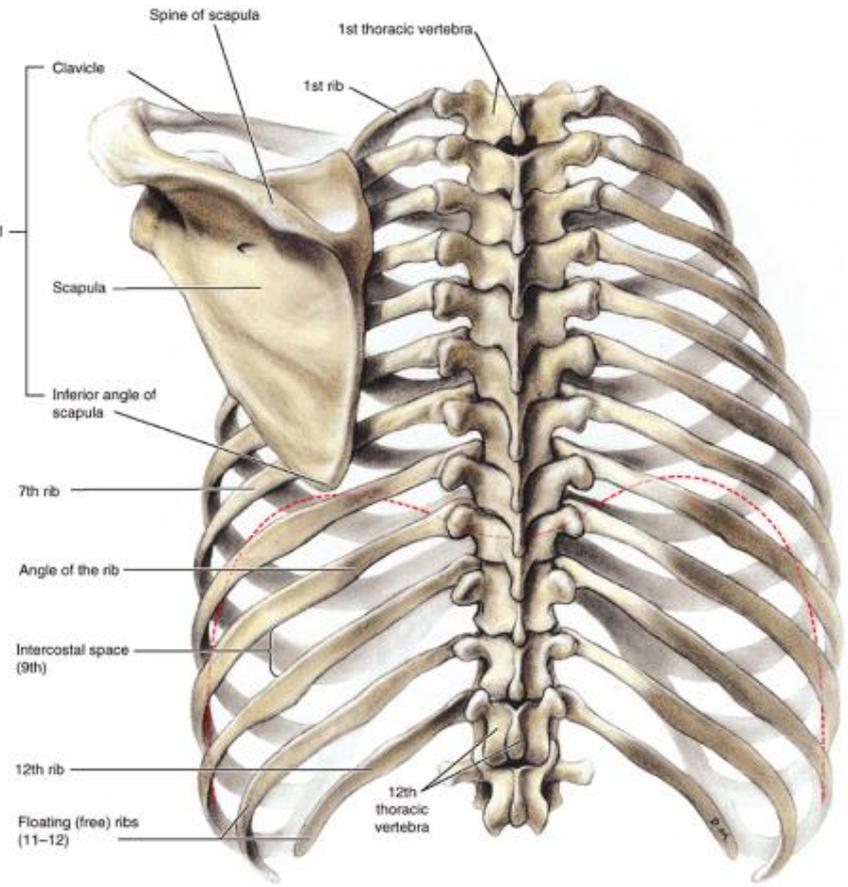
**Fusão das quatro vértebras coccígeas (Co1-Co4)**  
**-fusão entre 20-30 anos / após 30 anos Moore**  
**-remanescente da eminência caudal embrionária**  
**(4<sup>a</sup>-8<sup>a</sup> semana de vida IU)**

**É a parte superior do tronco, situada entre o pescoço e o abdome, sendo formada pela cavidade torácica, seu conteúdo e a parede que a circunda.**



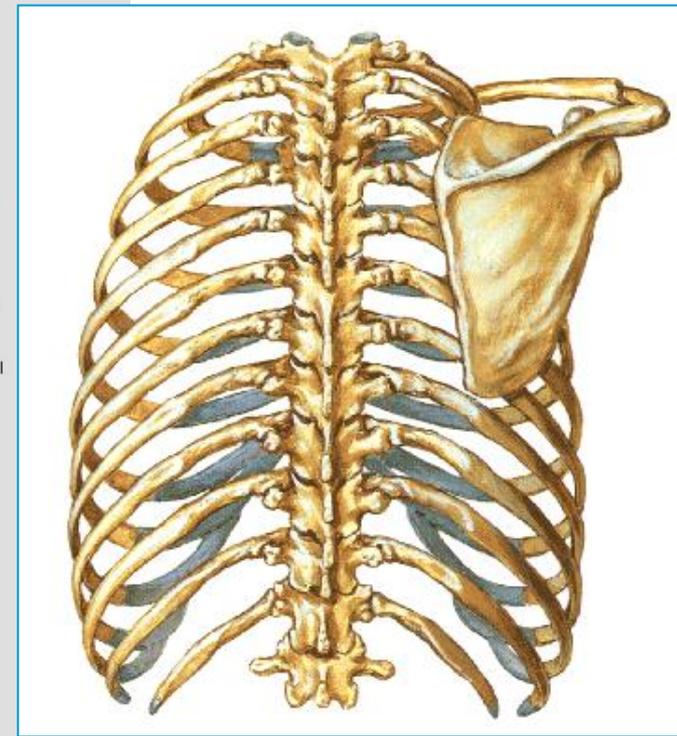
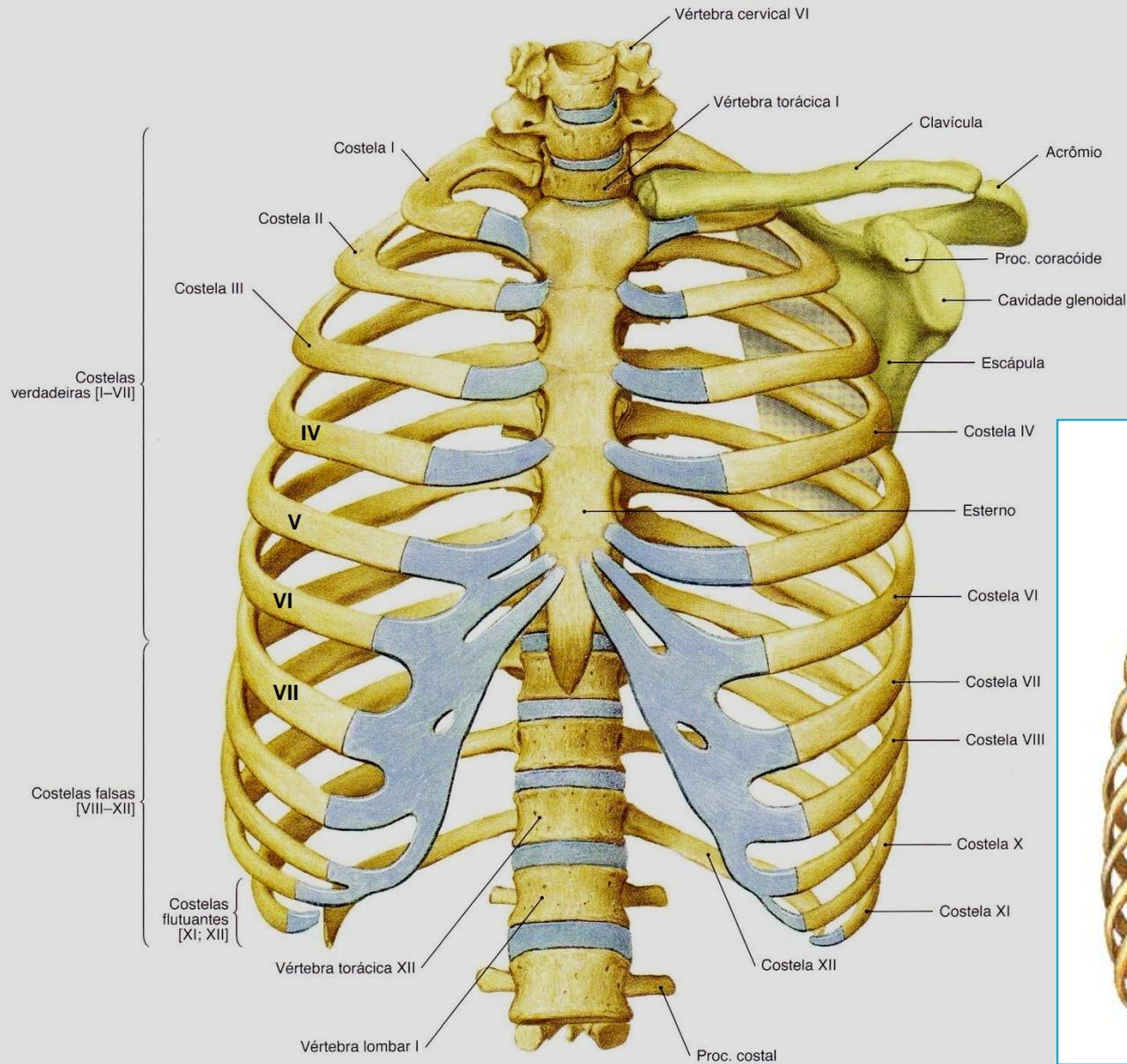
Spine of scapula

**(A) Anterior view**

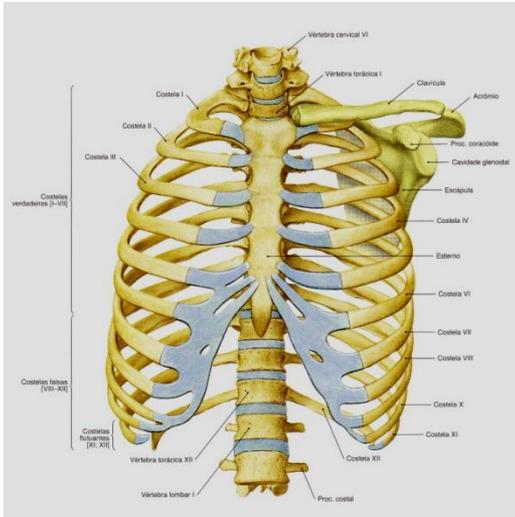


**(B) Posterior view**

# O Esqueleto do Tórax = Caixa Torácica



# O Esqueleto do Tórax = Caixa Torácica



**As cartilagens costais contribuem para a elasticidade da caixa torácica, impedindo que golpes variados no tórax fraturem o esterno e ou as costelas.**

**Costelas verdadeiras (vertebroesternais): se fixam através de cartilagens costais próprias ao esterno (1-7);**

## **Costelas falsas**

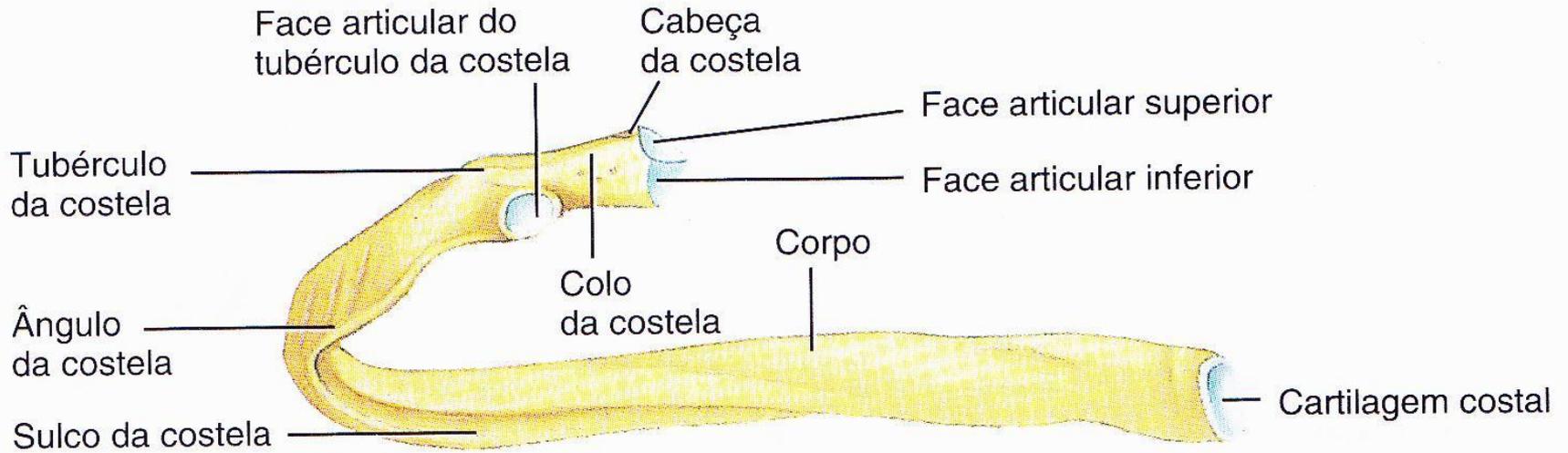
**1-Vertebrocondrais - suas cartilagens costais fixam-se indiretamente ao esterno (através da VII cartilagem costal) (8-10), ou não o fazem (11-12);**

**2-Flutuantes (vertebrais, livres) – não se fixam ao esterno (11-12)**

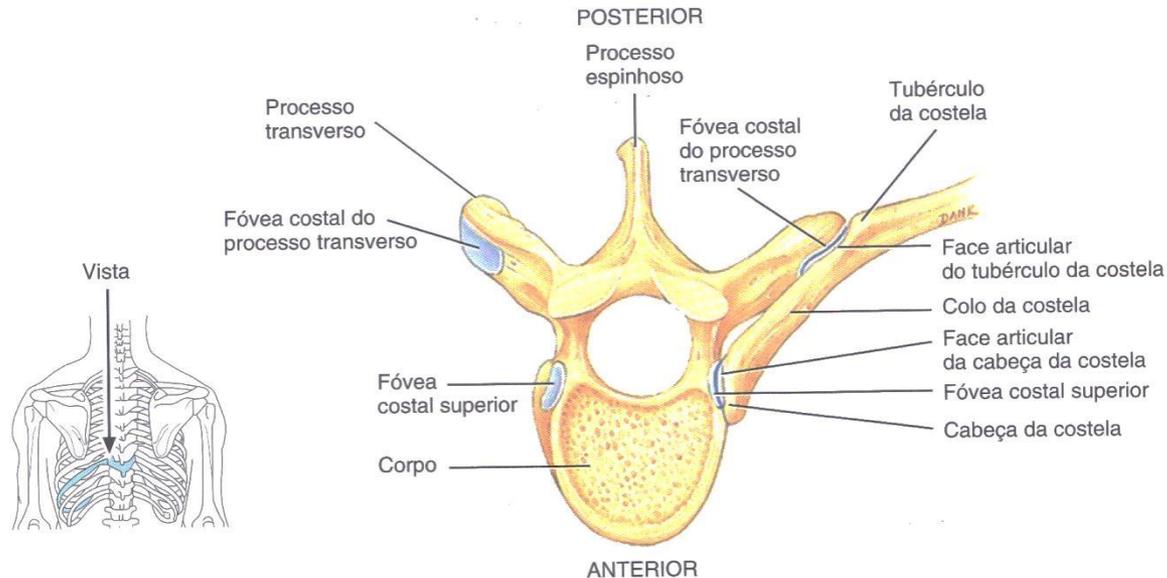
### **Funções:**

- Envolve e protege os órgãos nas cavidades torácica e abdominal superior**
- Permite a mecânica da respiração (resiste às pressões internas negativas geradas pela retração elástica dos pulmões e pelos movimentos inspiratórios)**
- Fornece suporte para os ossos do cingulo do membro superior**
- Fornece fixação para vários músculos**

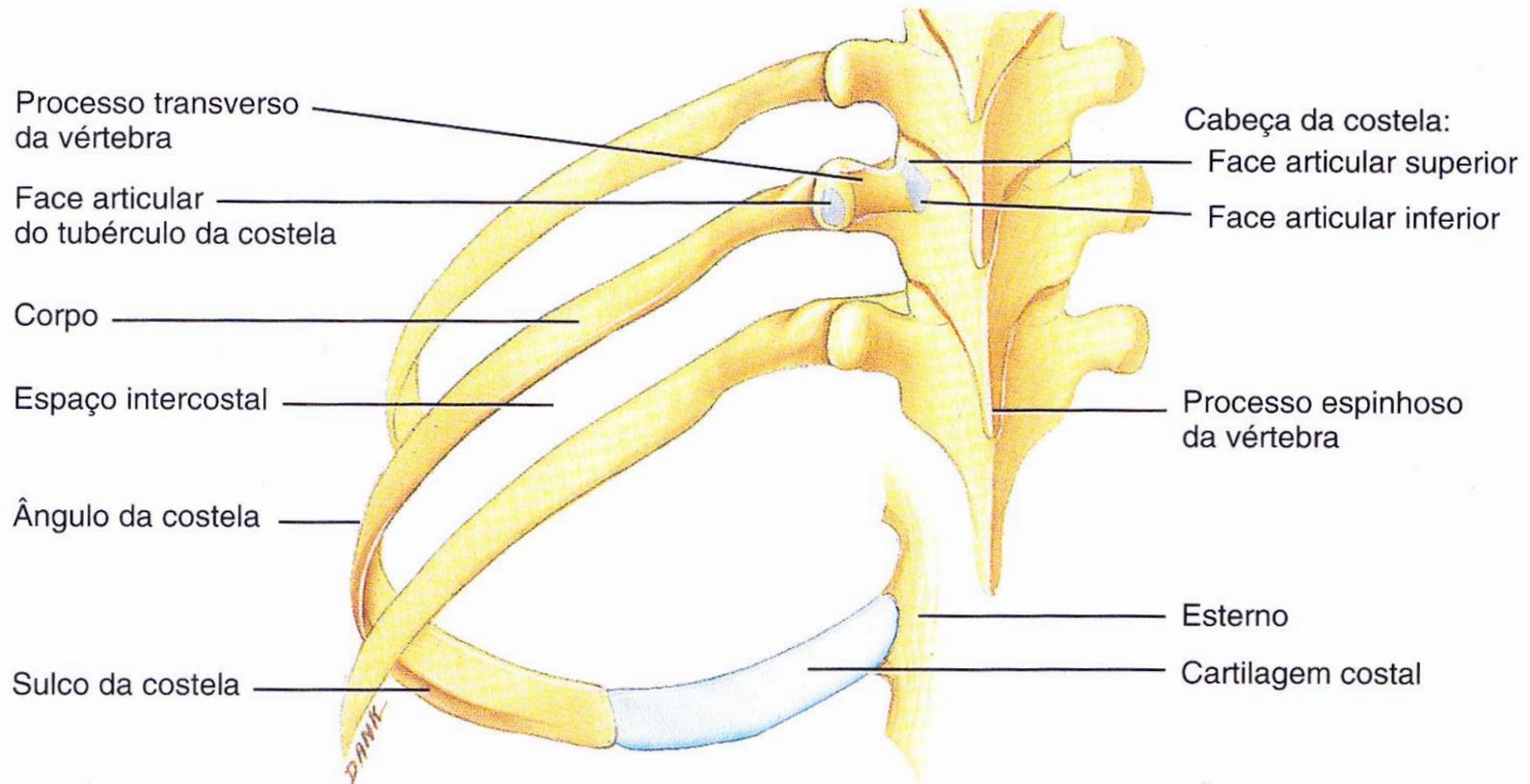
# O Esqueleto do Tórax = Costelas



(a) Vista posterior da costela esquerda

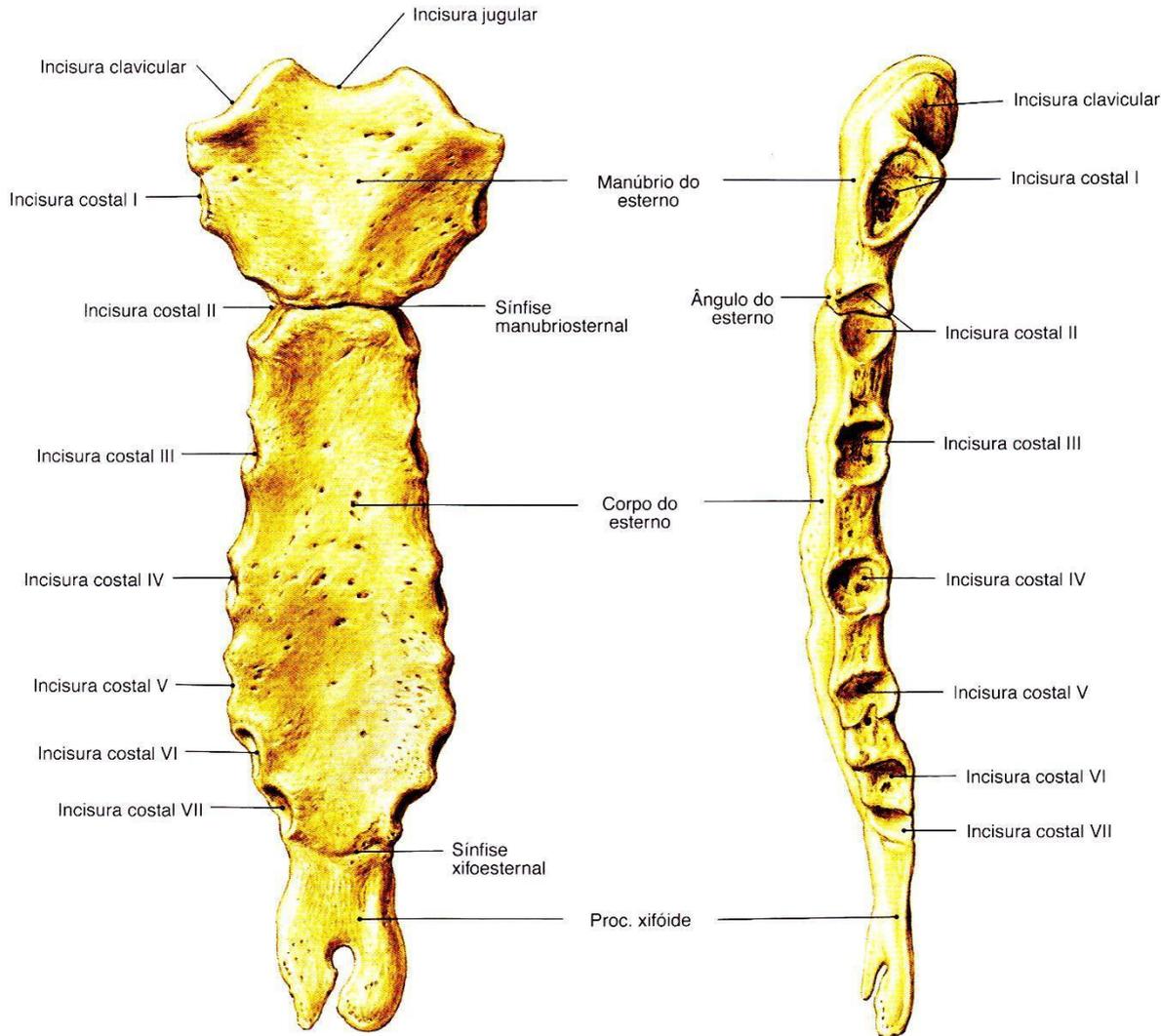


# O Esqueleto do Tórax = Costelas



(b) Vista posterior das costelas esquerdas articuladas com o esterno e com as vértebras torácicas

# O Esqueleto do Tórax = Esterno



-~15 cm de comprimento

-Fusão por volta dos 25 anos

-Ossificação completa do processo xifóide por volta dos 40 anos

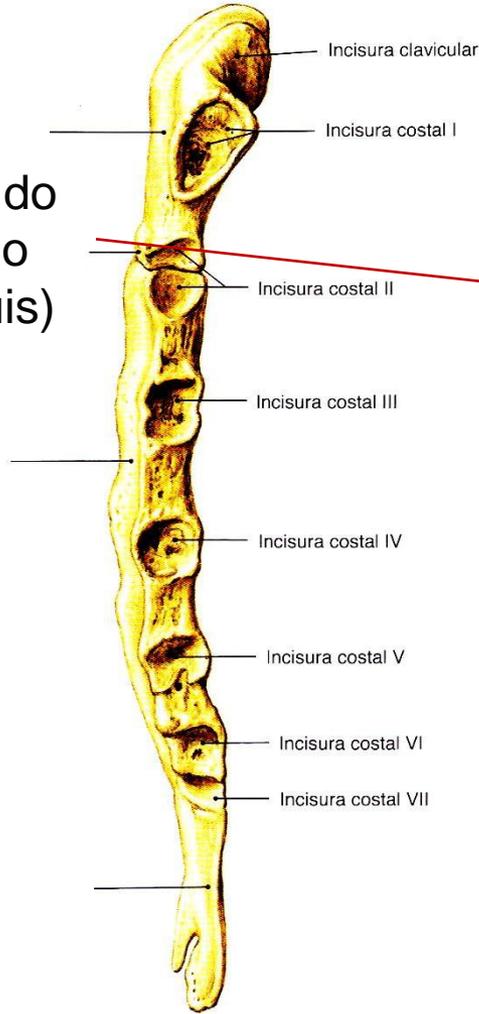
-Esternotomia mediana

-Biópsia do esterno

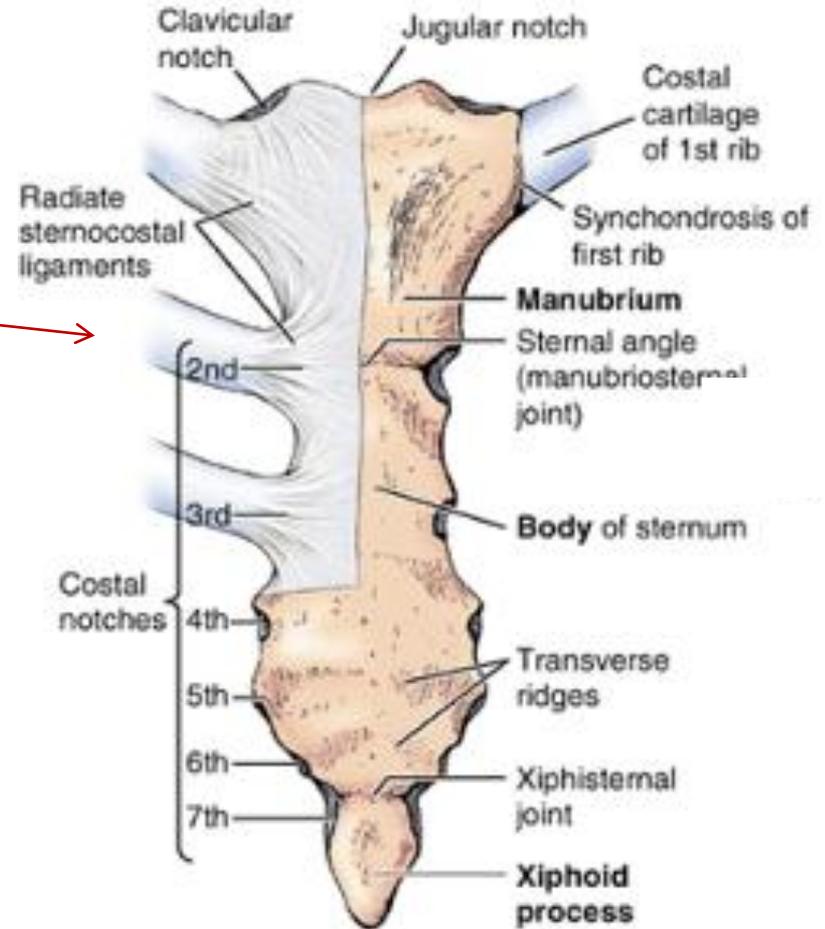
-Fratura do esterno – risco (mortalidade de 25 a 45%)

# O Esqueleto do Tórax = Esterno

Ângulo do esterno (de Louis)



Localização da 2<sup>o</sup> costela



(A) Anterior view

(B)

# O Esqueleto do Tórax = Esterno

