

# **A gerincvelő makroszkópiája és vérellátása**

**Gerincvelői idegek**

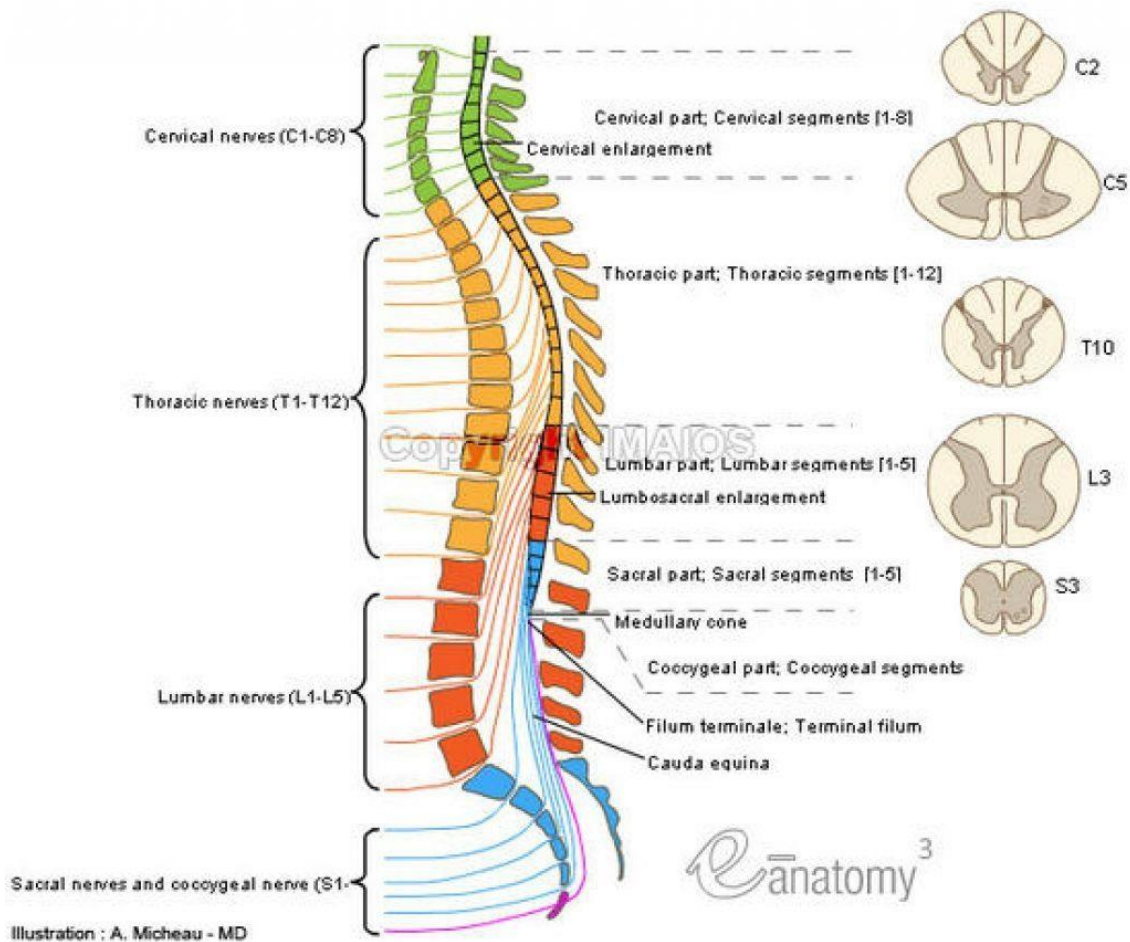
**A gerincvelői szelvény, dermatomák**

**Nemeskéri Ágnes**  
**2019**

**Semmelweis Egyetem**  
**Anatómiai, Szövet- és Fejlődéstani Intézet**

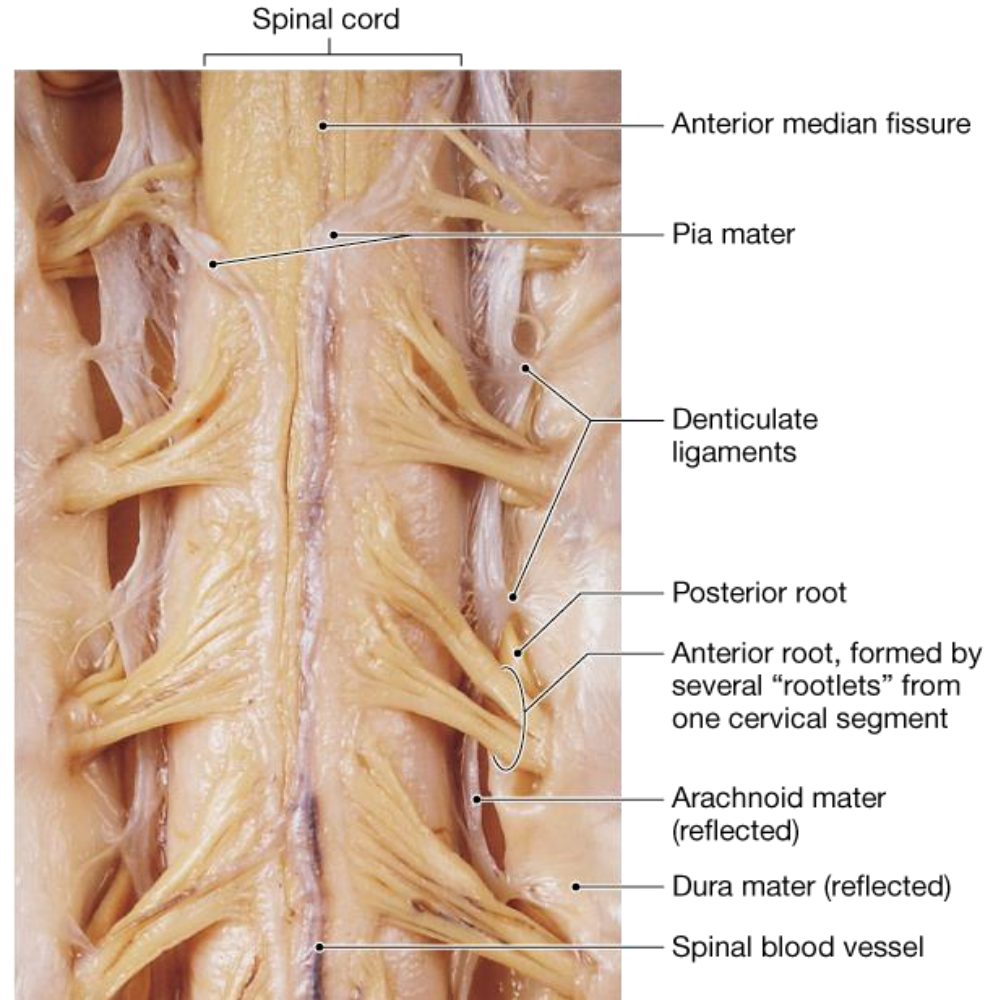
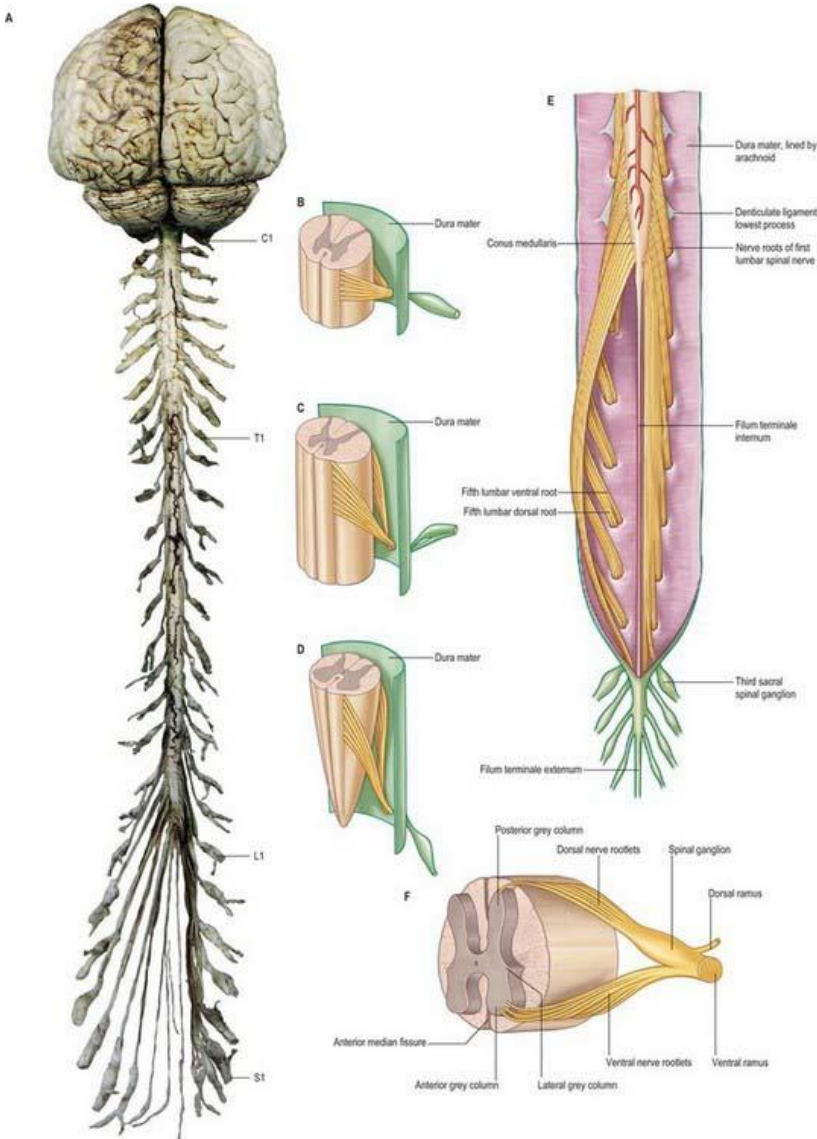
**Klinikai Anatómiai Kutatólaboratórium**  
**nemeskeri.agnes@med.semmelweis-univ.hu**

# A gerincvelő



# A gerincvelő makroszkópiája

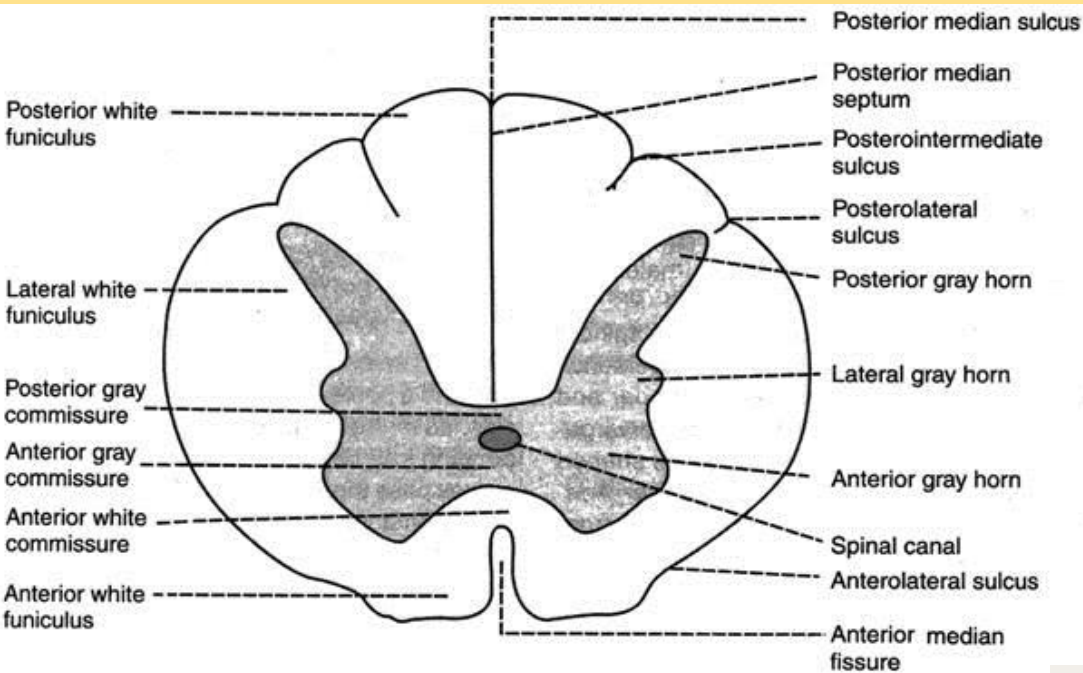
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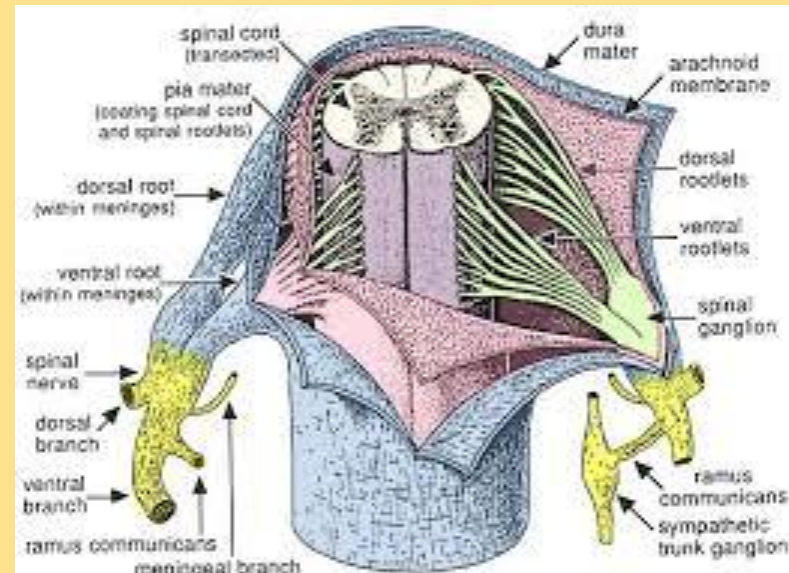
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# Gerincvelő keresztmetszete

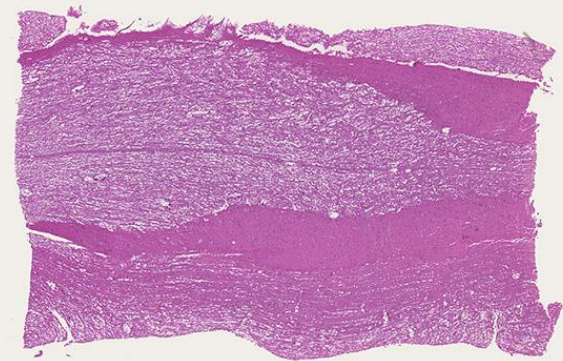


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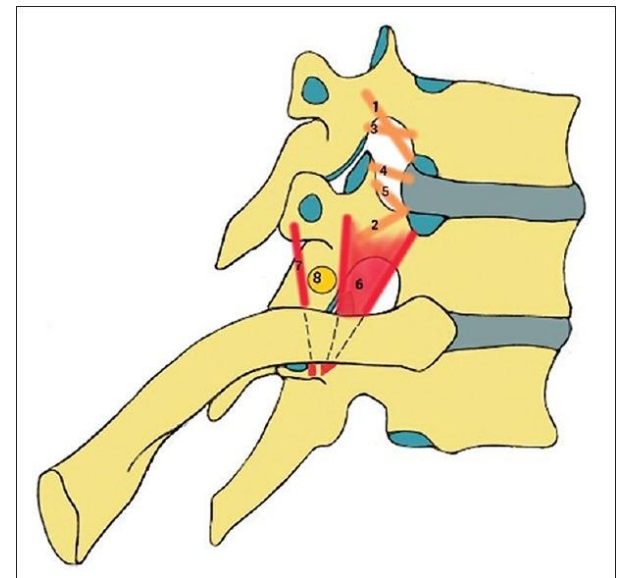
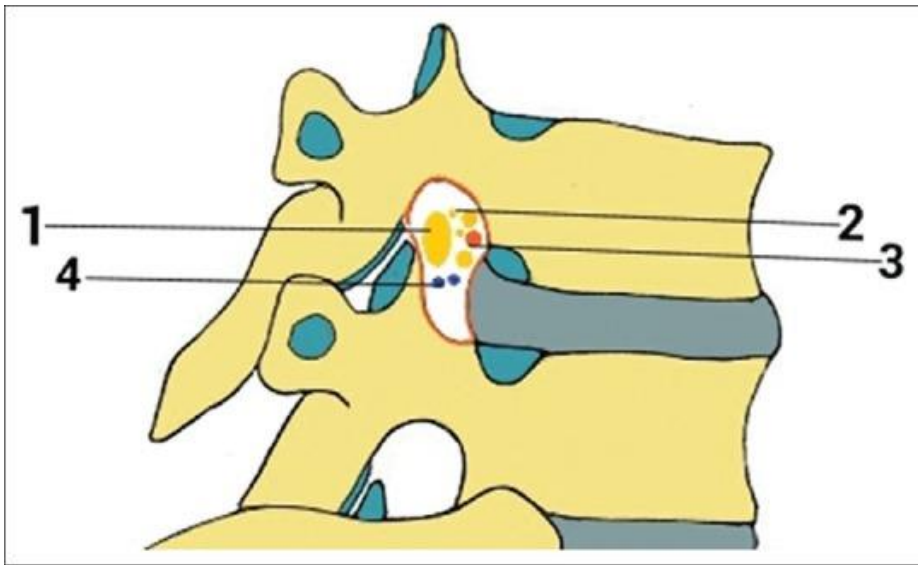
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## A gerincvelő hosszmetzete



# Foramen intervertebrale

1: segmentalis n. spinalis ganglion spinale, 2: sinuvertebralis idegek és rami communicantes, 3: segmentalis arteriák spinalis ága, 4: kapcsolat a plexus vertebralis internus és externus között



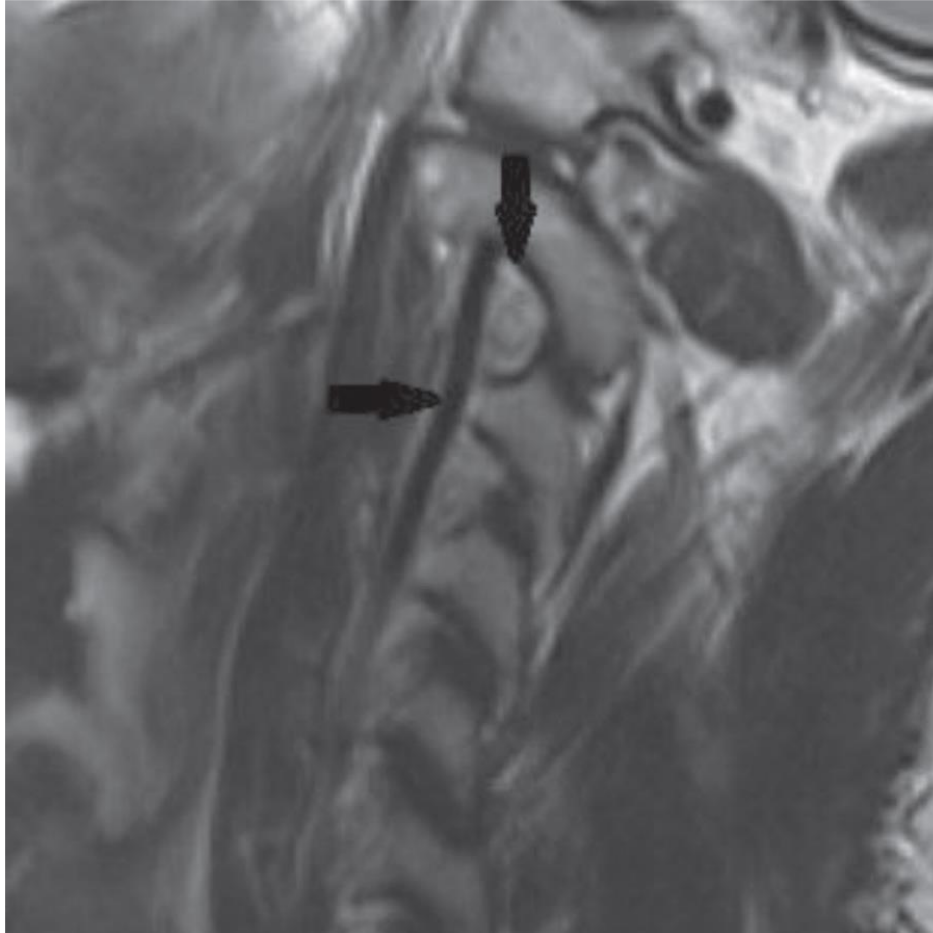
1: superior és 2: inferior ligament; 3: Superior transforaminalis ligament; 4: mid-transforaminalis ligament; 5: inferior transforaminalis ligament; costotransverse 6: superior és 7: inferior ligament; 8: n. spinalis a foramenen kívül

Clinical anatomy and significance of the thoracic intervertebral foramen  
A cadaveric study and review of the literature  
[Grigorios Gkaskdaris](#), [Grigorios Tripsianis](#),<sup>1</sup>  
[Konstantinos Kotopoulos](#), and [Stylianios Kapetanakis](#)

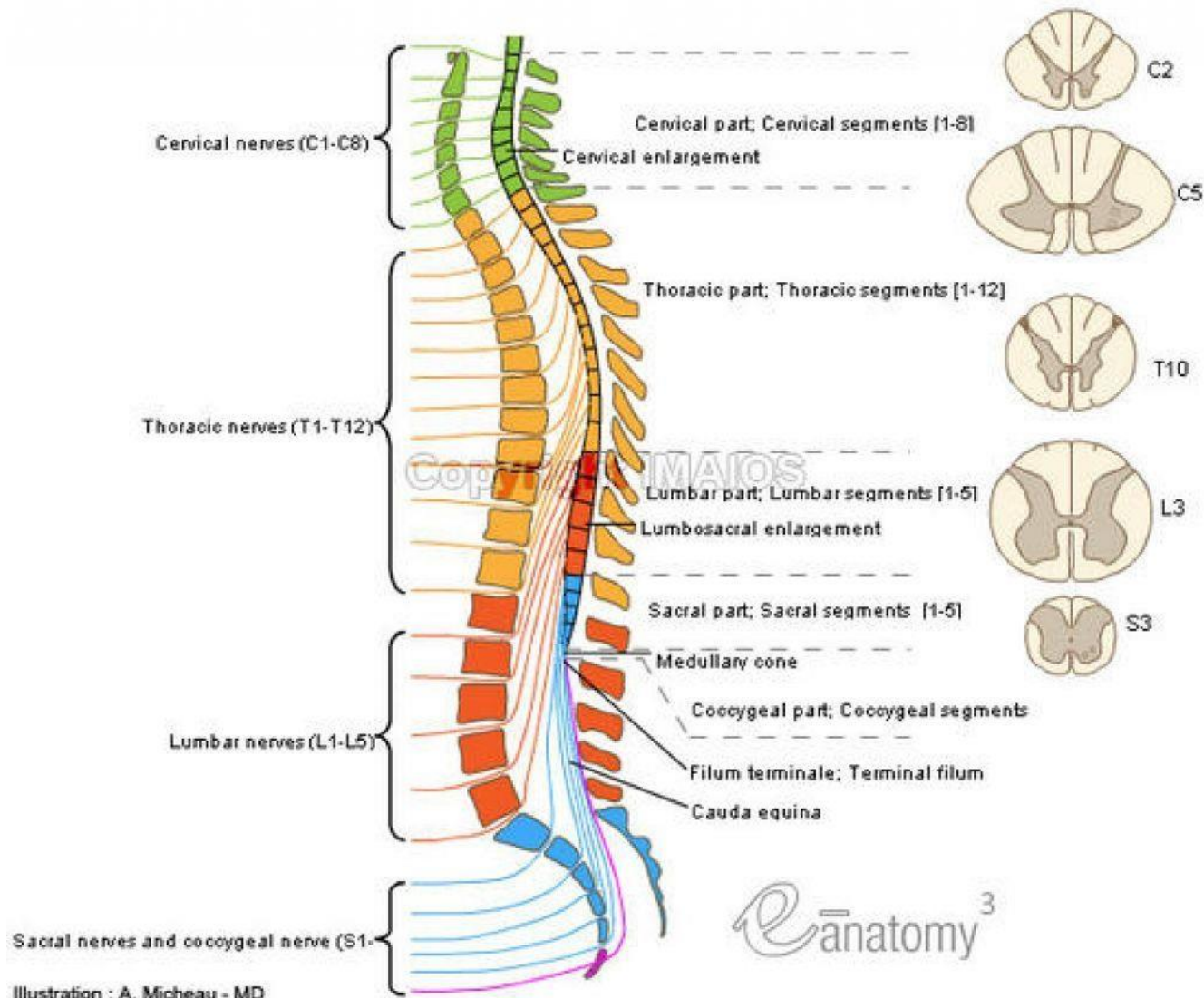
- A thoracalis foramen intervertebrale határai
  - anterior: posterolateralis része az alsó csigolya testének
    - posterolateralis aspectusa a felső csigolyatestnek + a discus intervertebralis + a felső csigolya teste
  - superior: a felső csigolya incisura vertebralis inferiorja
  - posterior: processus articularis superior alsó vertebra,
    - a fibrosus capsula ventralis része
    - processus articularis inferior felső vertebra;
  - inferior: incisura vertebralis superior alsó vertebra



# Foramen intervertebrale



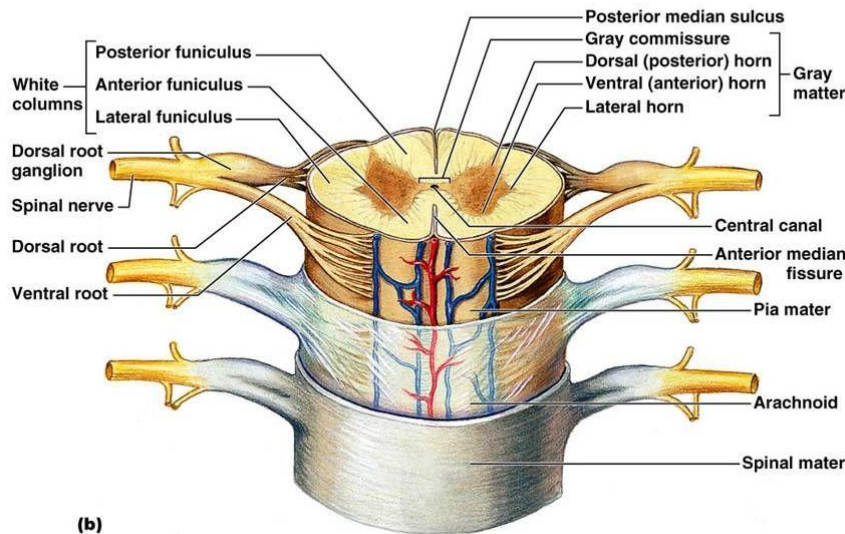
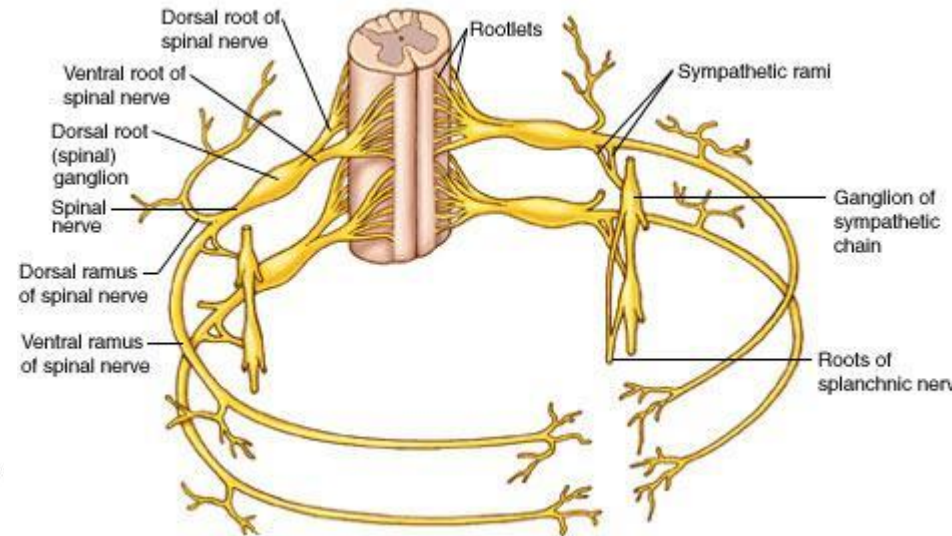
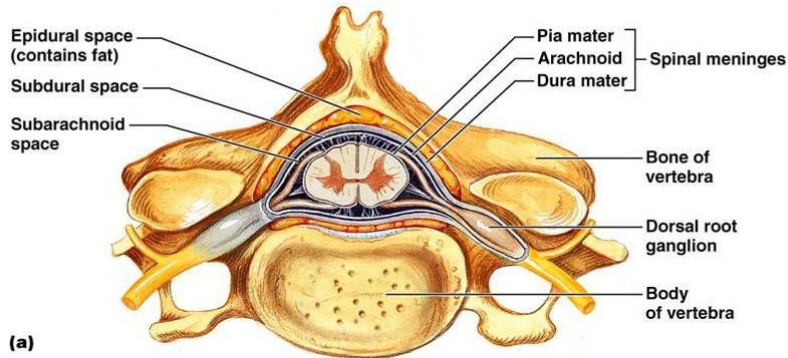
# A gerincvelői idegek





# N. Spinalis

## ramus ventralis – ramus dorsalis



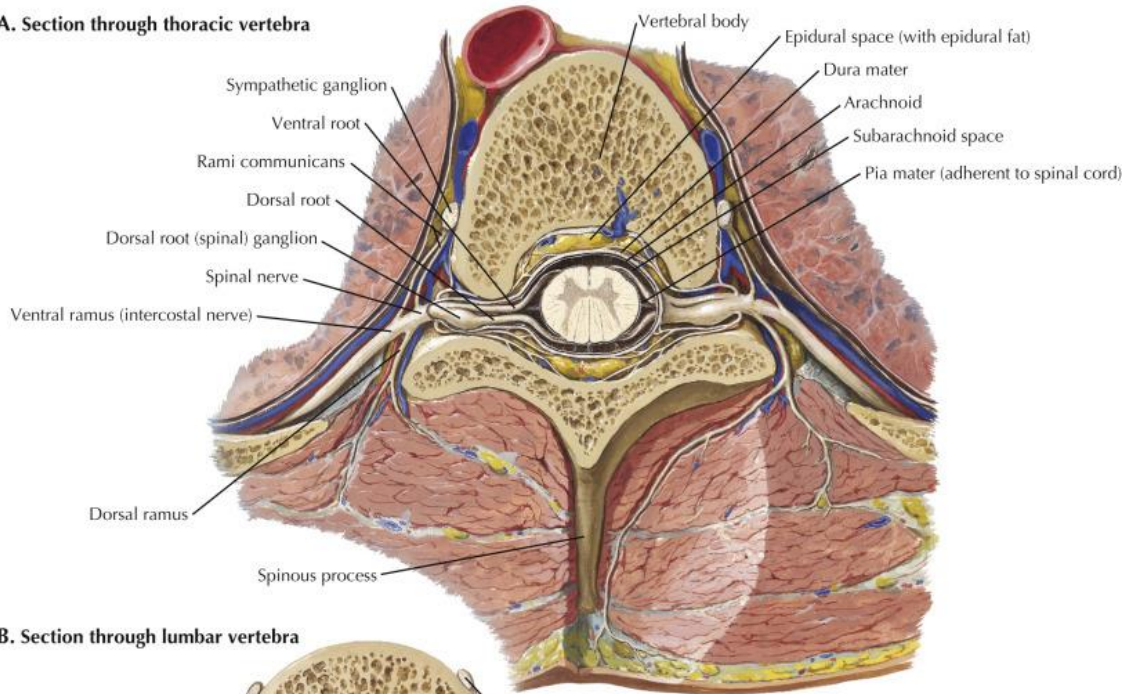
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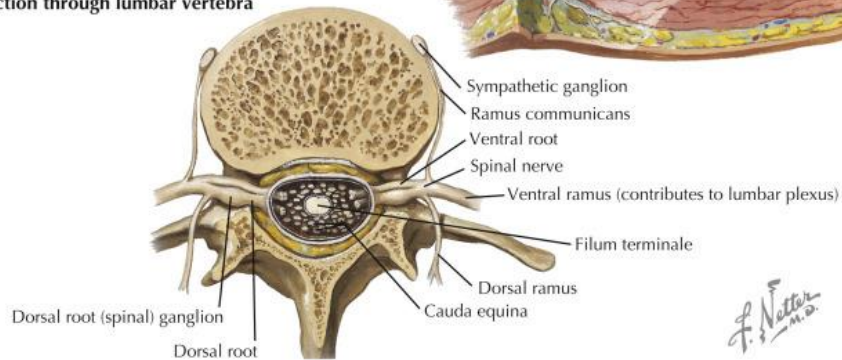
# Meninxek

## Cavum epidurale – cavum subarachnoidale

A. Section through thoracic vertebra



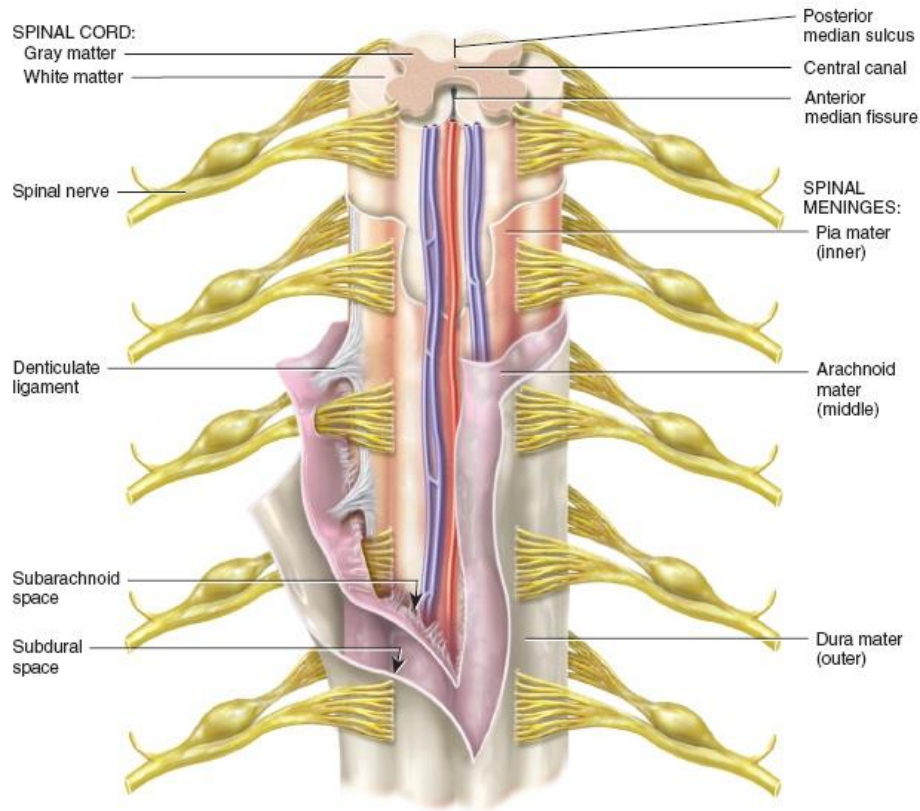
B. Section through lumbar vertebra



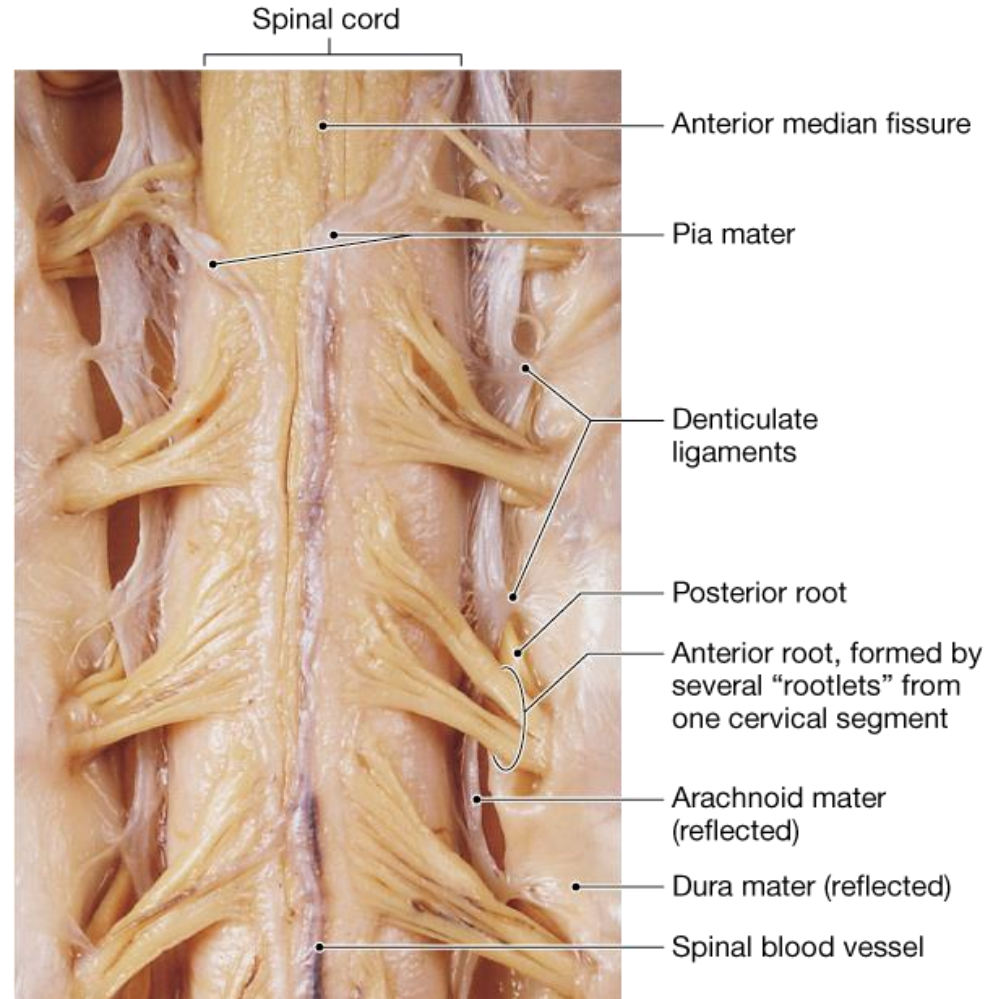
*F. Netter M.D.*

# Meninxek

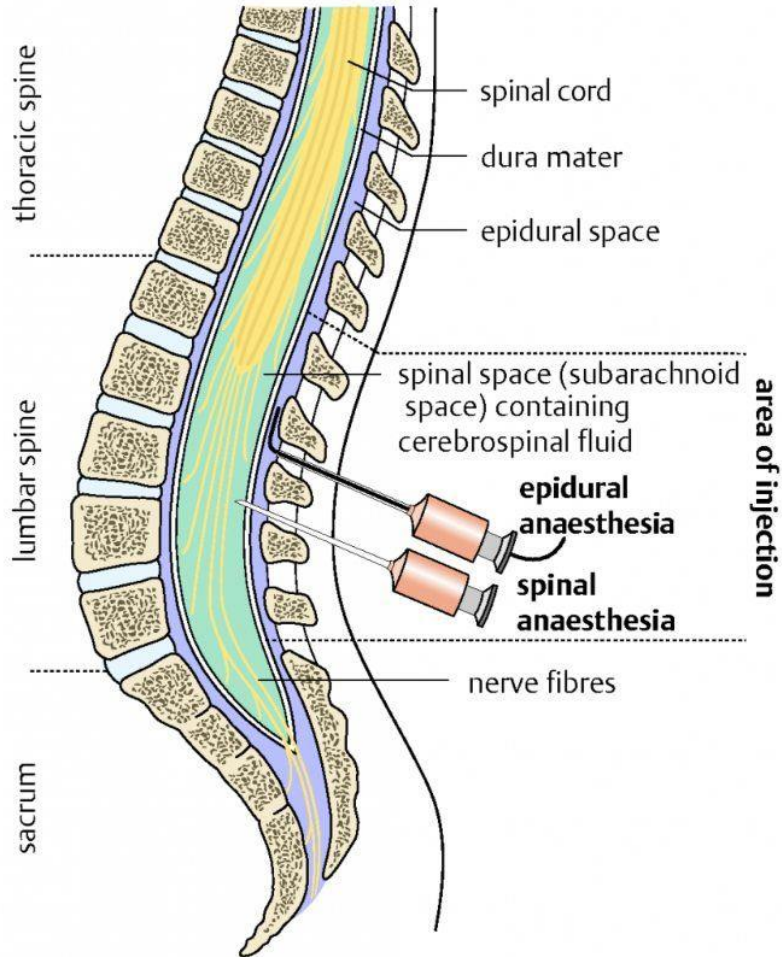
## Cavum epidurale – cavum subarachnoidale



(a) Anterior view and transverse section through spinal cord



# Epidurális érzéstelenítés – spinális érzéstelenítés



- **epidural analgesia** vagy anaesthesia, nagyobb gyógyszeradag szükséges
- az analgesia kialakulása **lassabb**, a vérnyomás lassabb csökkenése

- epiduralis injekció **bárhol gerincoszlop mentén (cervicalis, thoracalis, lumbalis, vagy sacralis)**,
- Epiduralis gyógyszeradagolás folytatható a műtét után is katéteren át

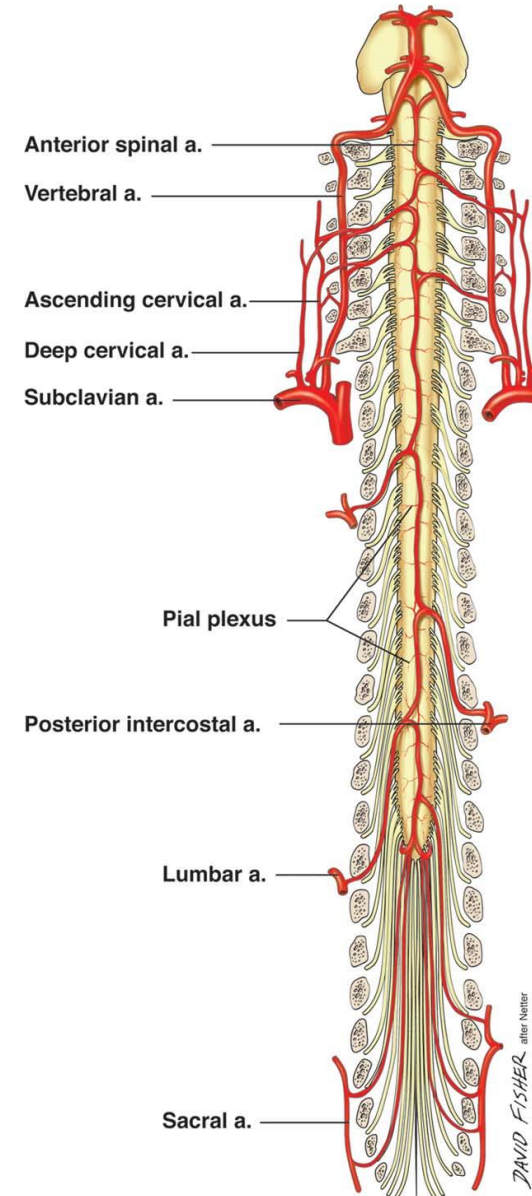
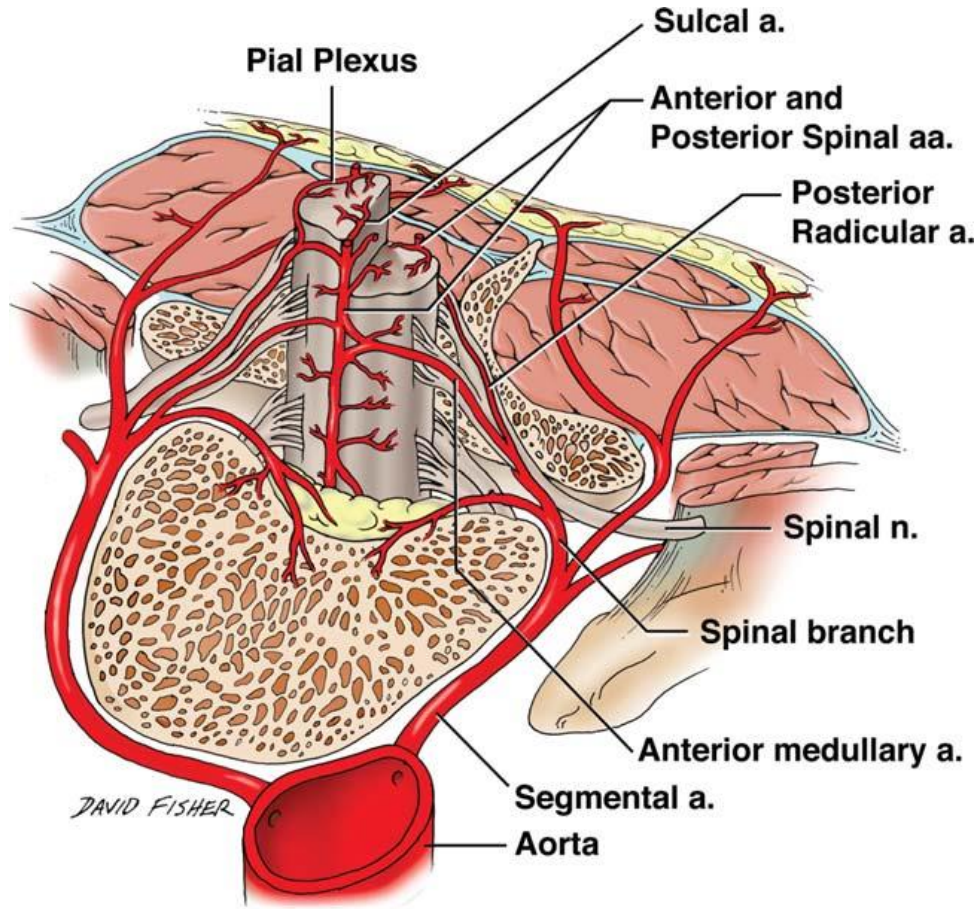
- **spinális injekció** leggyakrabban a II. lumbalis csigolyatest alatt elkerülendő a medulla spinalis sértését

- könnyebb segmentalis analgesiat vagy anaesthesiat elérni

- **spinális anesthesia** általában egyetlen inj.

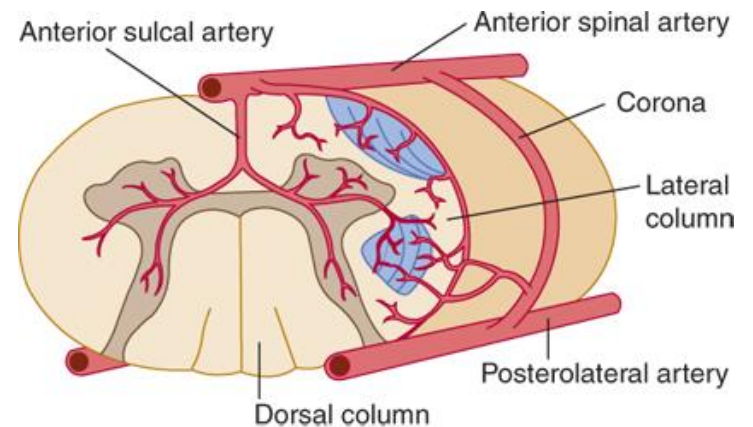
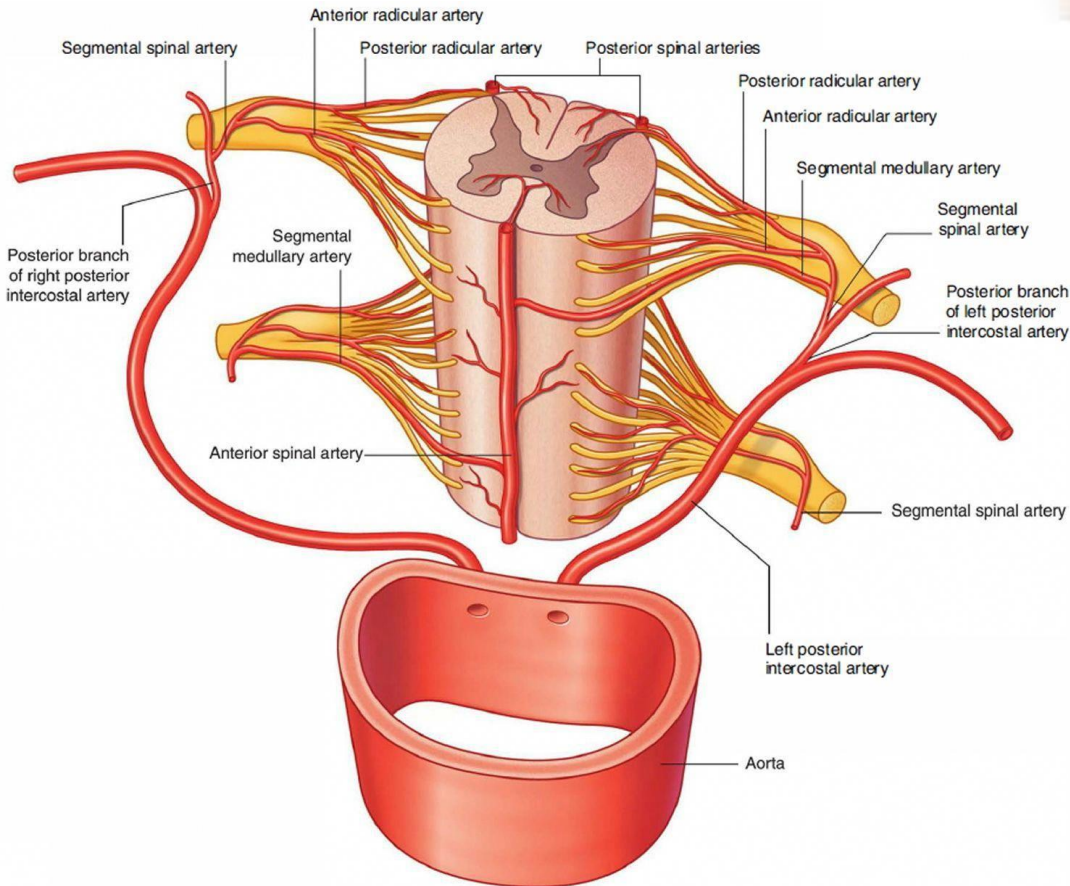
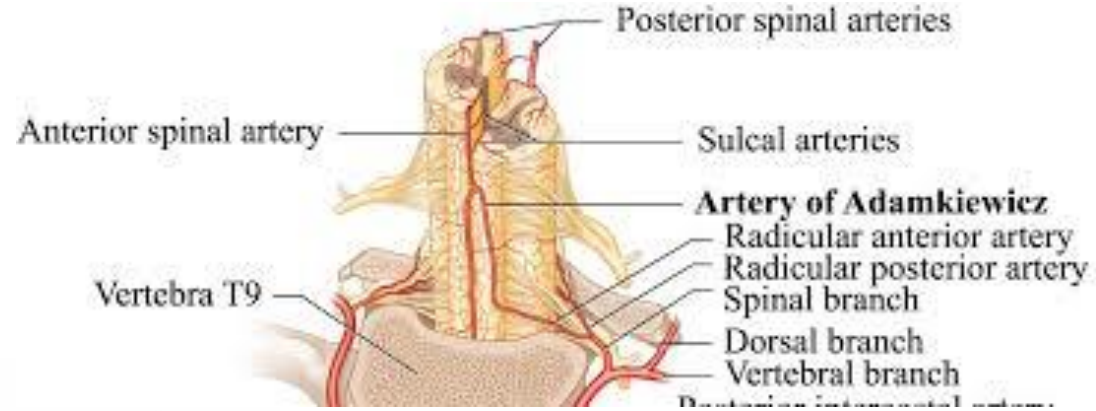


# A gerincvelő vérellátása



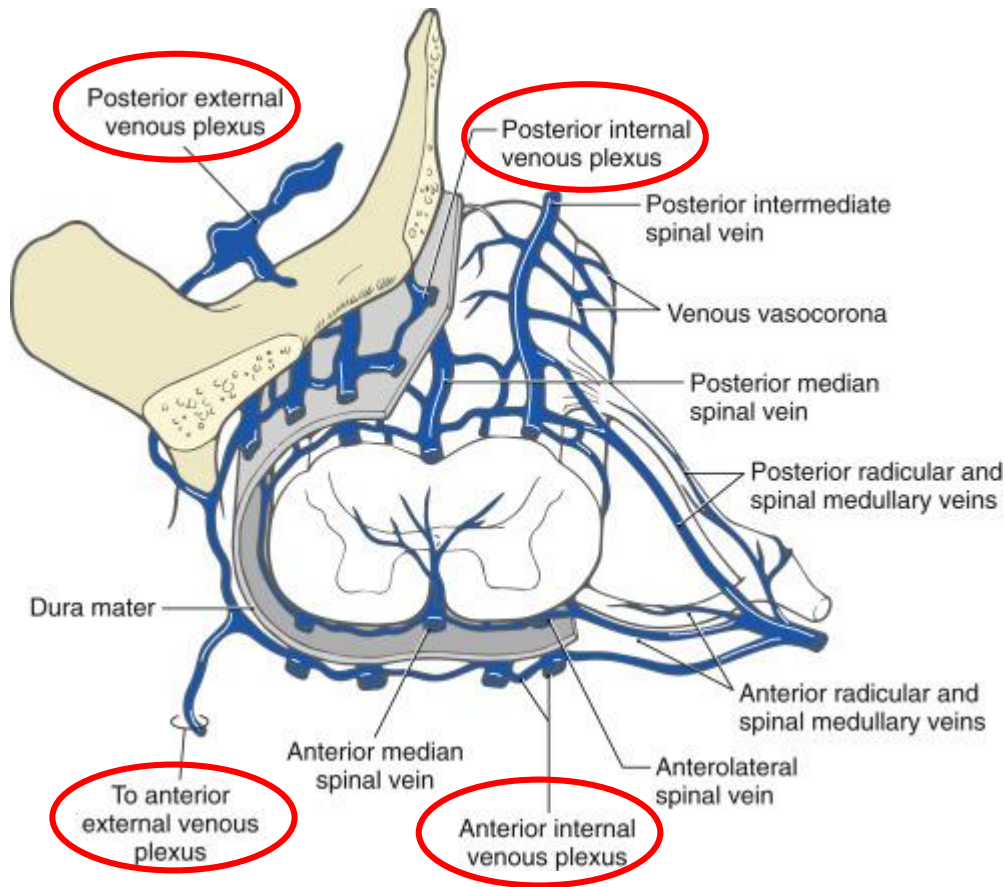


# A gerincvelő vérellátása

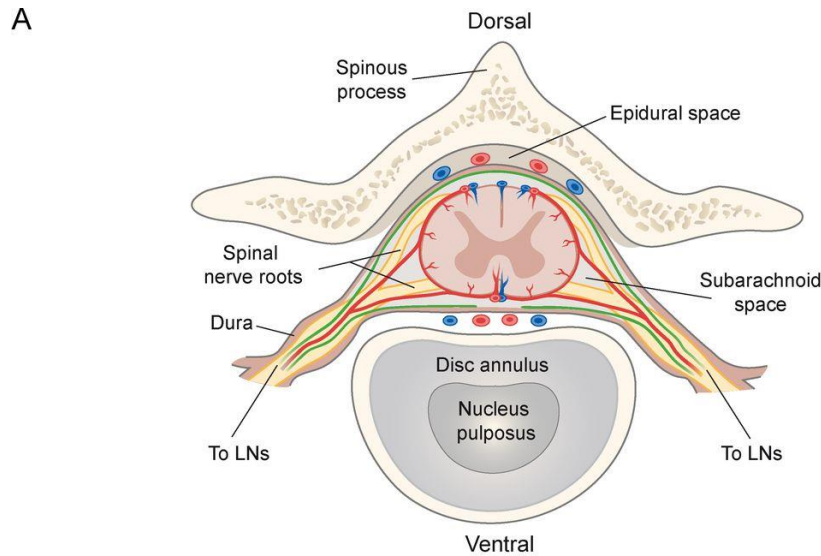


Source: Stephen G. Waxman  
 Clinical Neuroanatomy, Twenty-Eighth Edition  
 www.accessmedicine.com  
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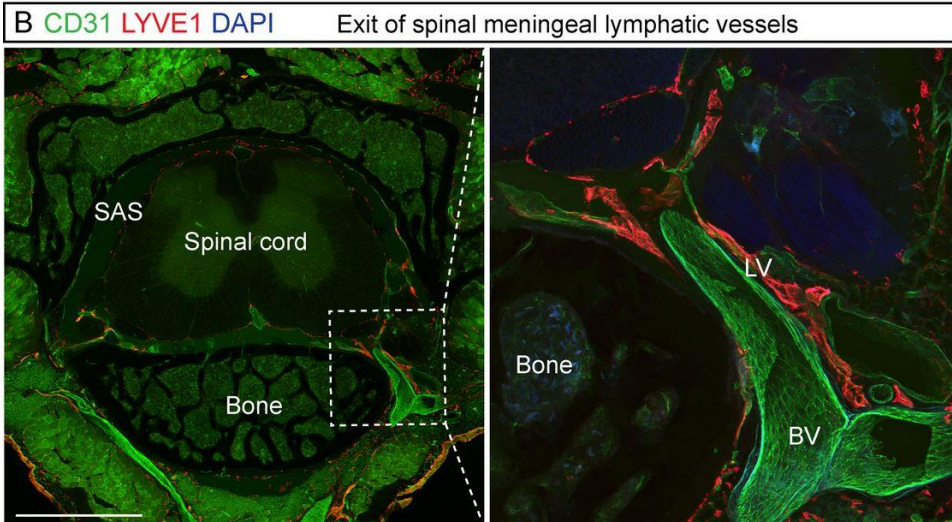
# A gerincvelő vénás rendszere



# Nyirokerek a dura mater spinalisban



**LYVE1** – kis nyirokér  
endothélt jelöli specifikusan



**CD31** - arteria, arteriola,  
capillaris, venula endothel

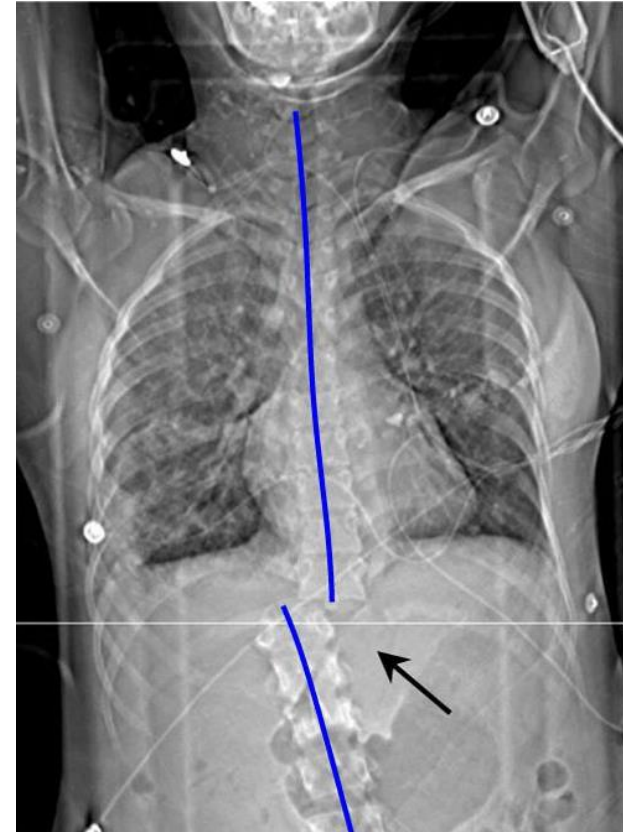
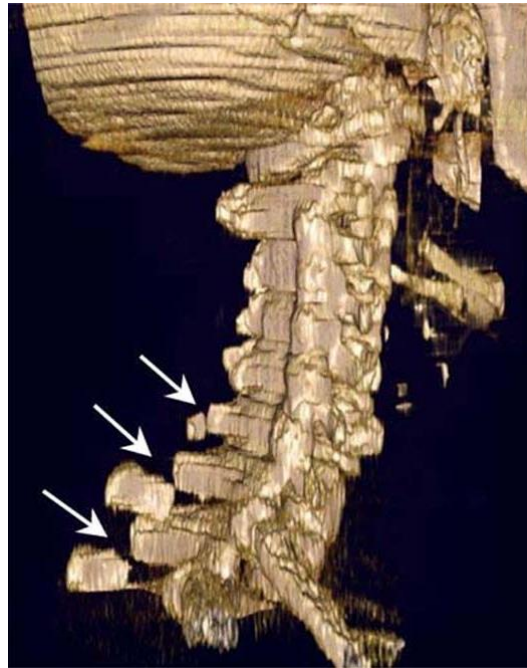
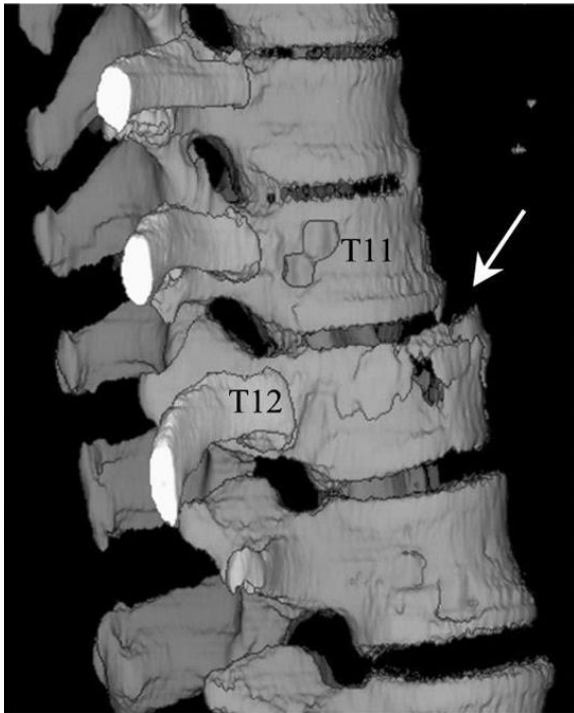
# Discus intervertebralis sérv cervicalis szakasz





# Vizsgálómódszerek CT

## Compressiós törés



# Vizsgálómódszerek MR



Thoracic spine trauma. Sagittal MRIs in a patient with acute spinal injury resulting from a motor vehicle accident.

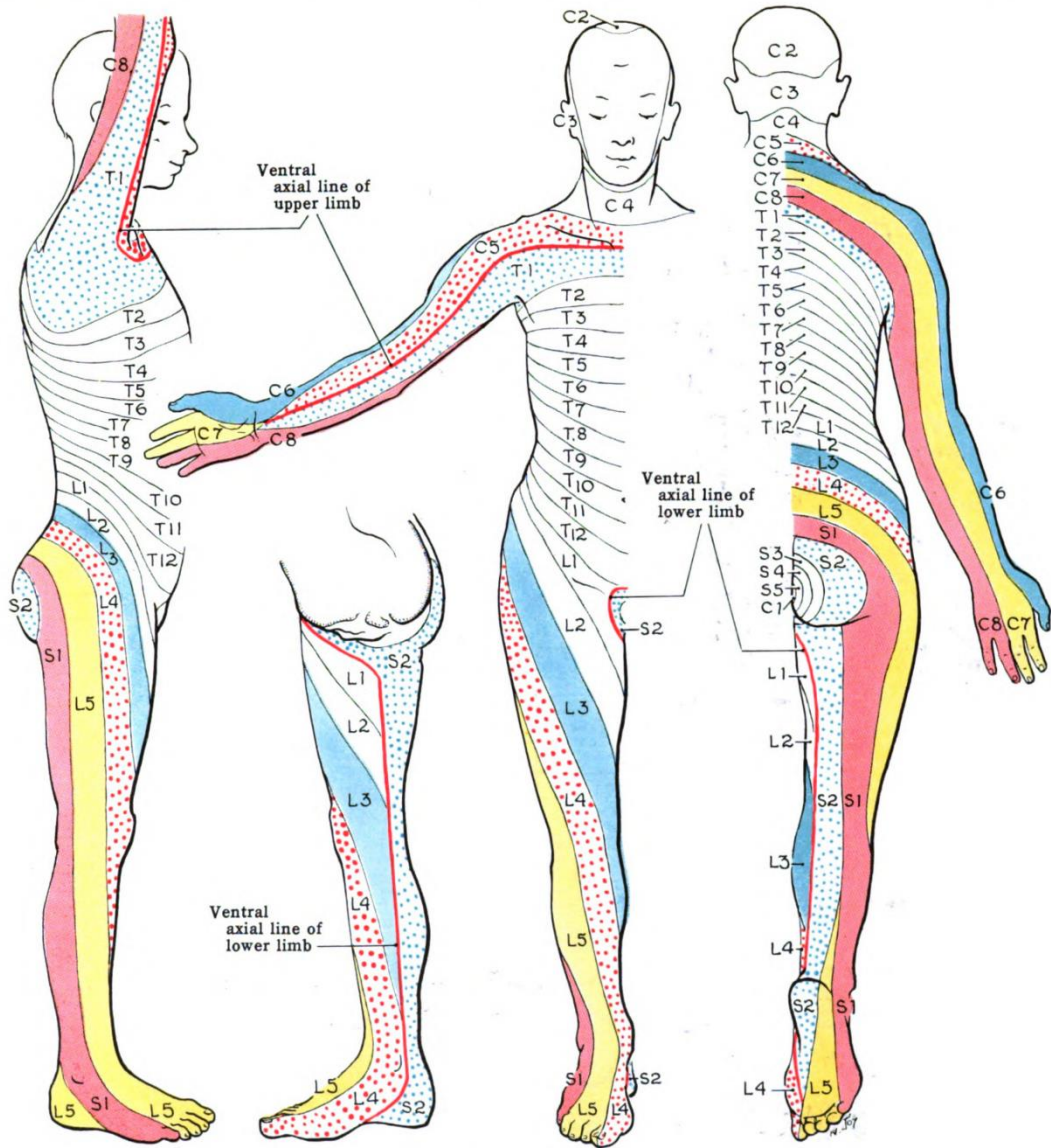
A, Fast spin-echo MRI demonstrates a combined fracture compression of vertebral bodies of T8 and T9.

A small fragment of bone compromises the spinal canal and is in contact with the spinal cord.

B, Gradient-echo T2-weighted image better defines the bone fragment within the canal (arrow).

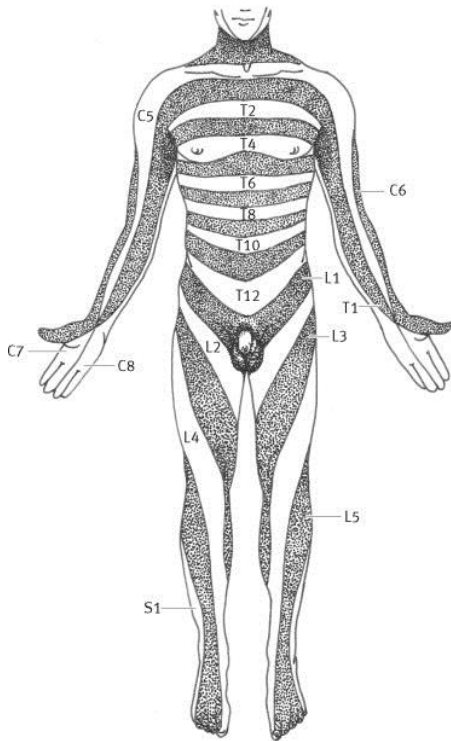
This fracture was associated with a partial spinal cord injury in which loss of motor function occurred with preservation of distal sensory function.

# Dermatomok



# Dermatoma

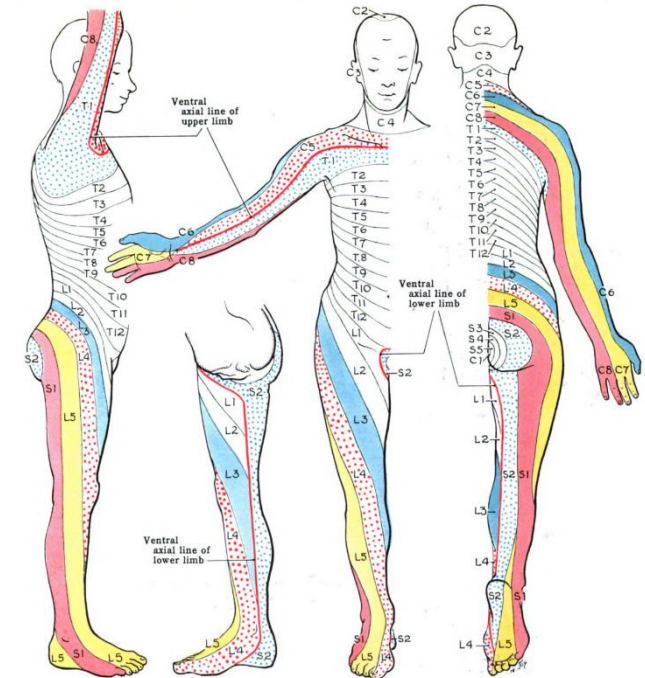
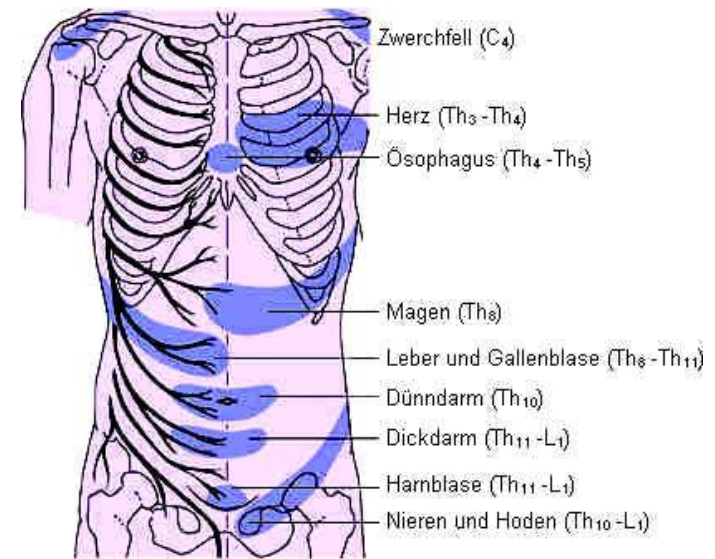
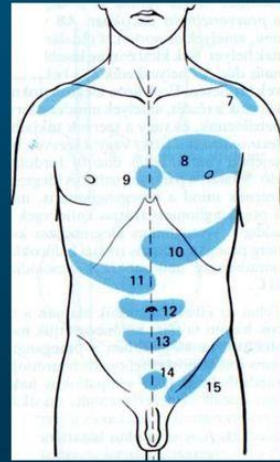
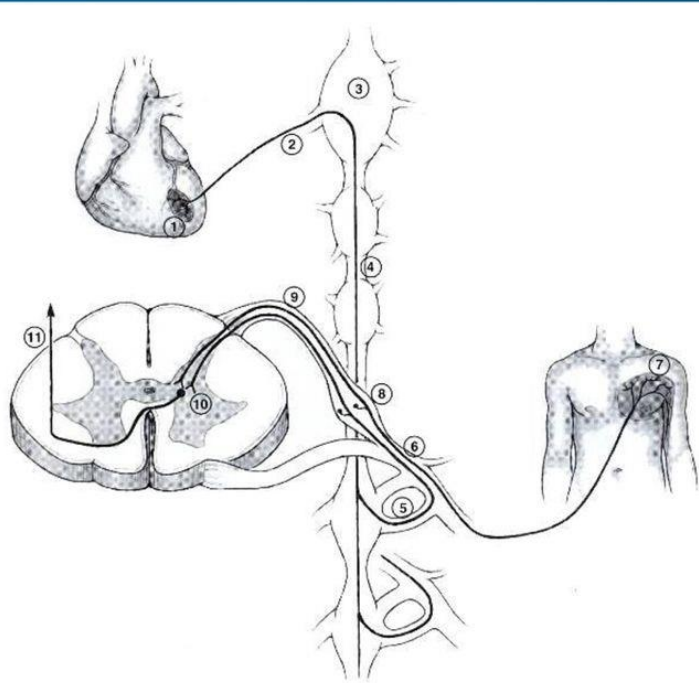
- a test bőrfelületének egy csíkja, amit egyetlen n. spinalis gyök ágai érzően látnak el
- az érző pálya első sejtje ganglion spinaléban található
- a spinalis ideggyökök szétoszlanak struktúrákon a gerincvelő segmentumának megfelelően
- dermatomák **átfednek**
- **DE** hernialt discus intervertebralis **éles fájdalmat az érintett dermatoma területén**
- a dermatomák ismerete fontos az ideggyök lézió és a perifériás ideg lézió elkülönítésében





# Head-zónák

## Referred Pain (Head zones)



Irodalom