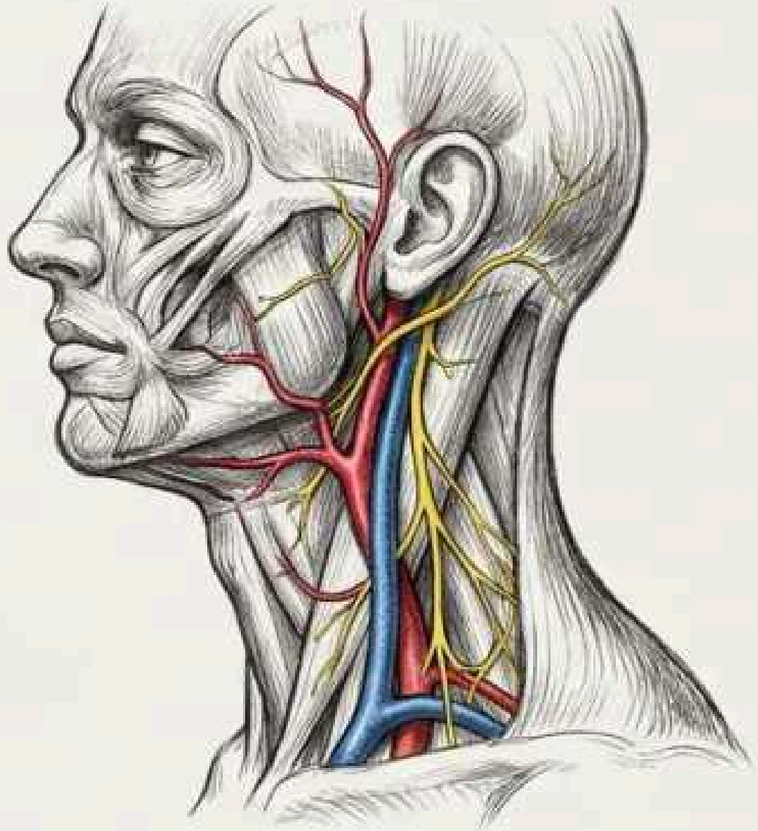
# The Head, Neck, and Nervous System

## A Clinical Guide to Protection, Connection, and Control



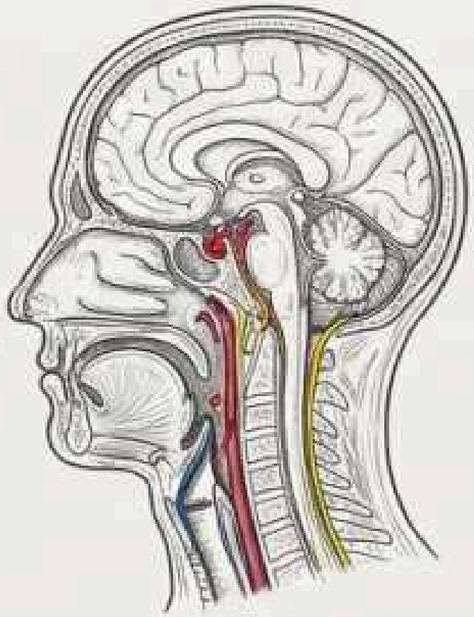
Anderson Academy · MED 501 B

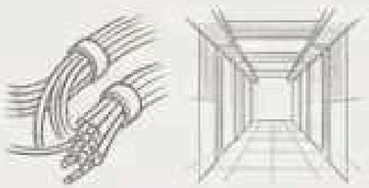
Questions: garyanderson@mail.grokbot.com · X: @garyanderson



## Protect (The Vault)

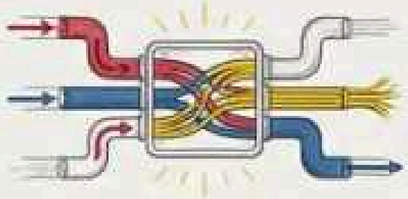
Skull and brain coverings.





## Connect (The Cables & Corridors)

Eyes, ears, airway, digestive tract start.

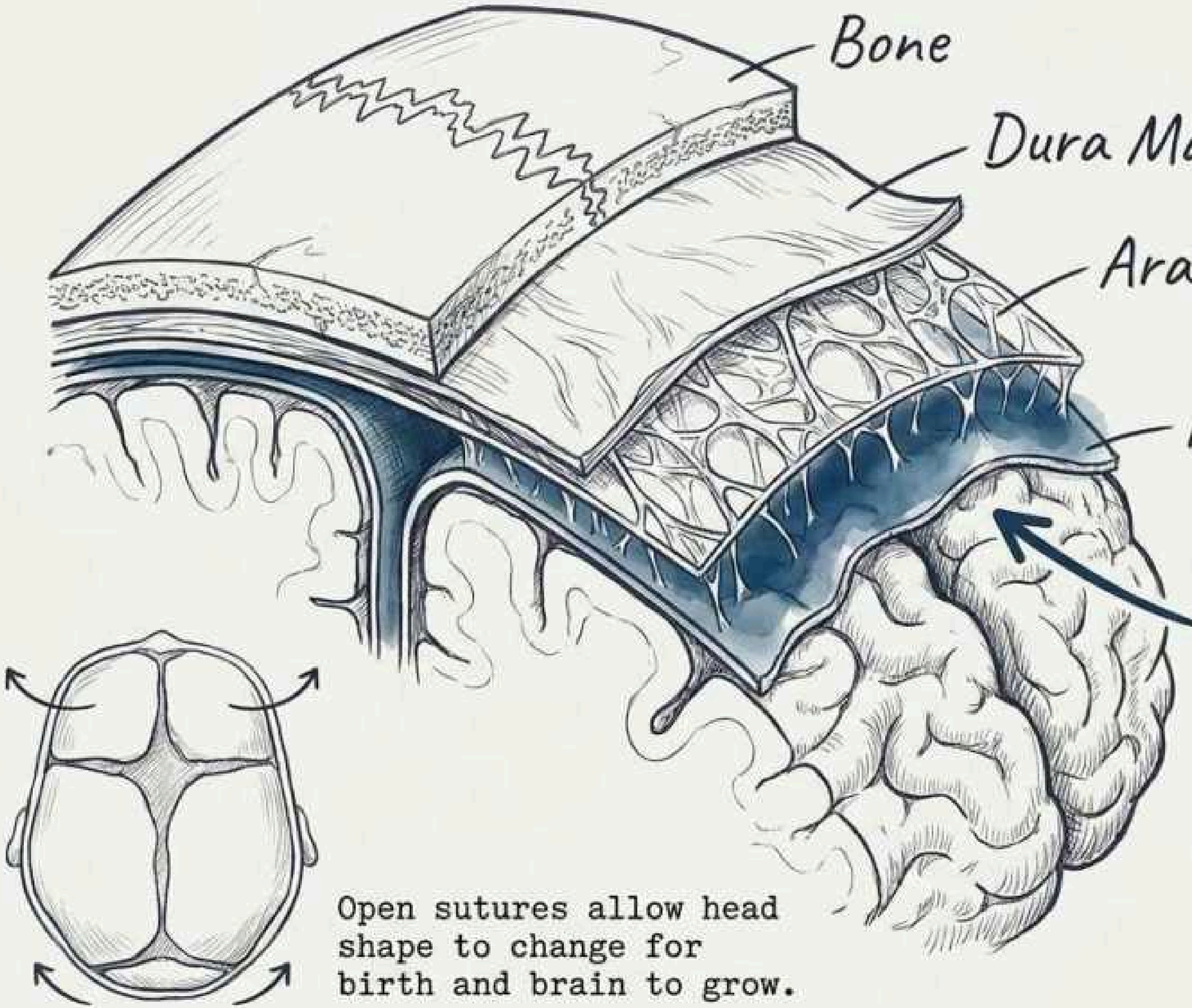


## Control (The Supply & Signals)

Great vessels and dense network of nerves.

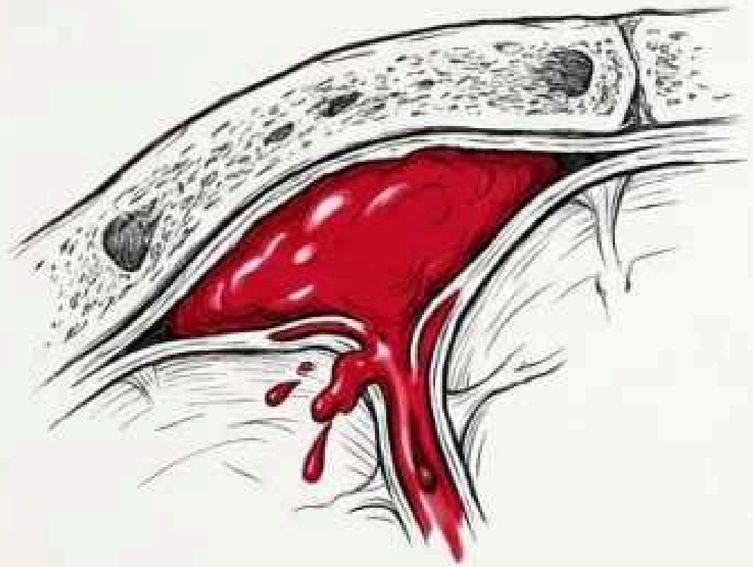
**Functional anatomy asks: What must this structure protect, connect, or control?**

¶ 5.2


Bone
Dura Mater
Arachnoid
Pia Mater
Cerebrospinal Fluid (CSF)
Cushioning the brain like a jelly in water.
Open sutures allow head shape to change for birth and brain to grow.

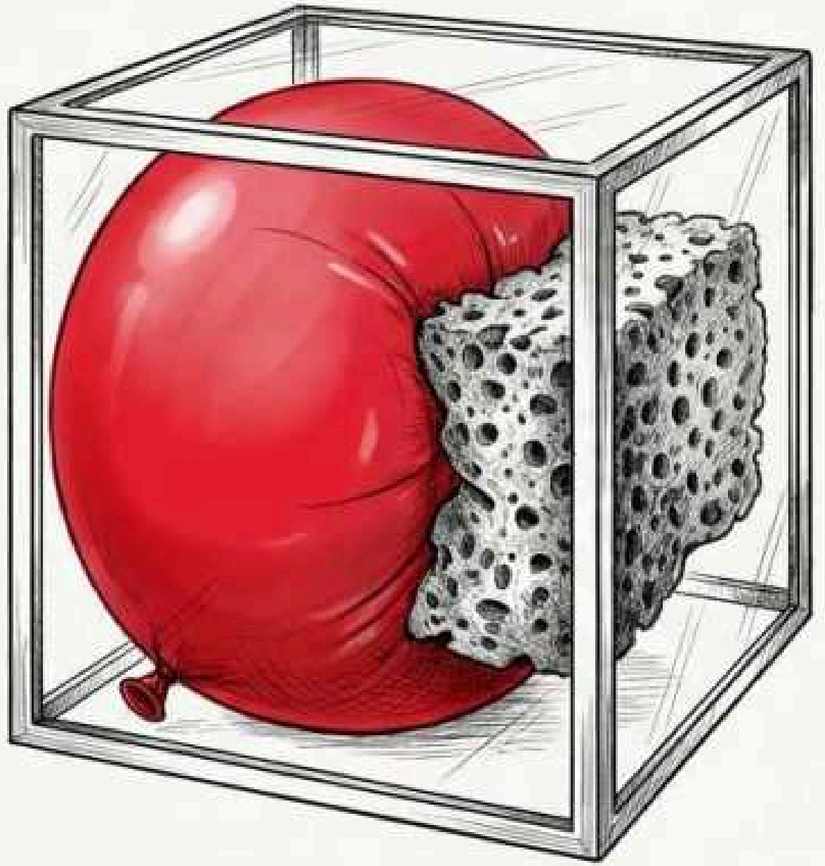
# Intracranial Pressure Emergency

## Epidural Haematoma

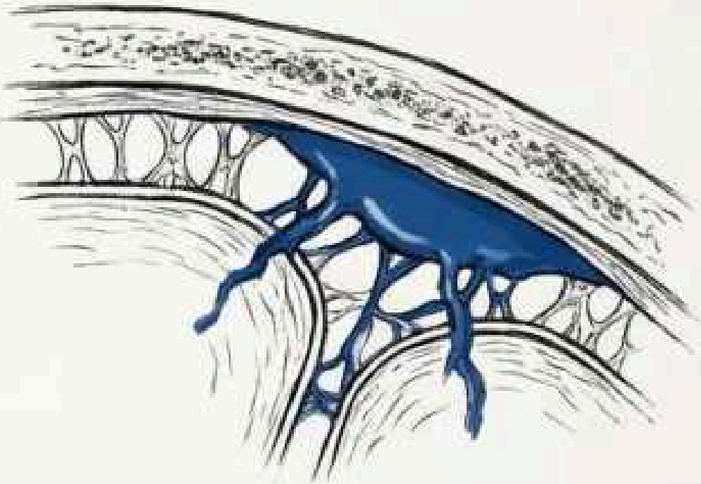


**Trigger:** Blow to side of head.
**Source:** Torn Artery
**Speed:** Rapidly growing clot.

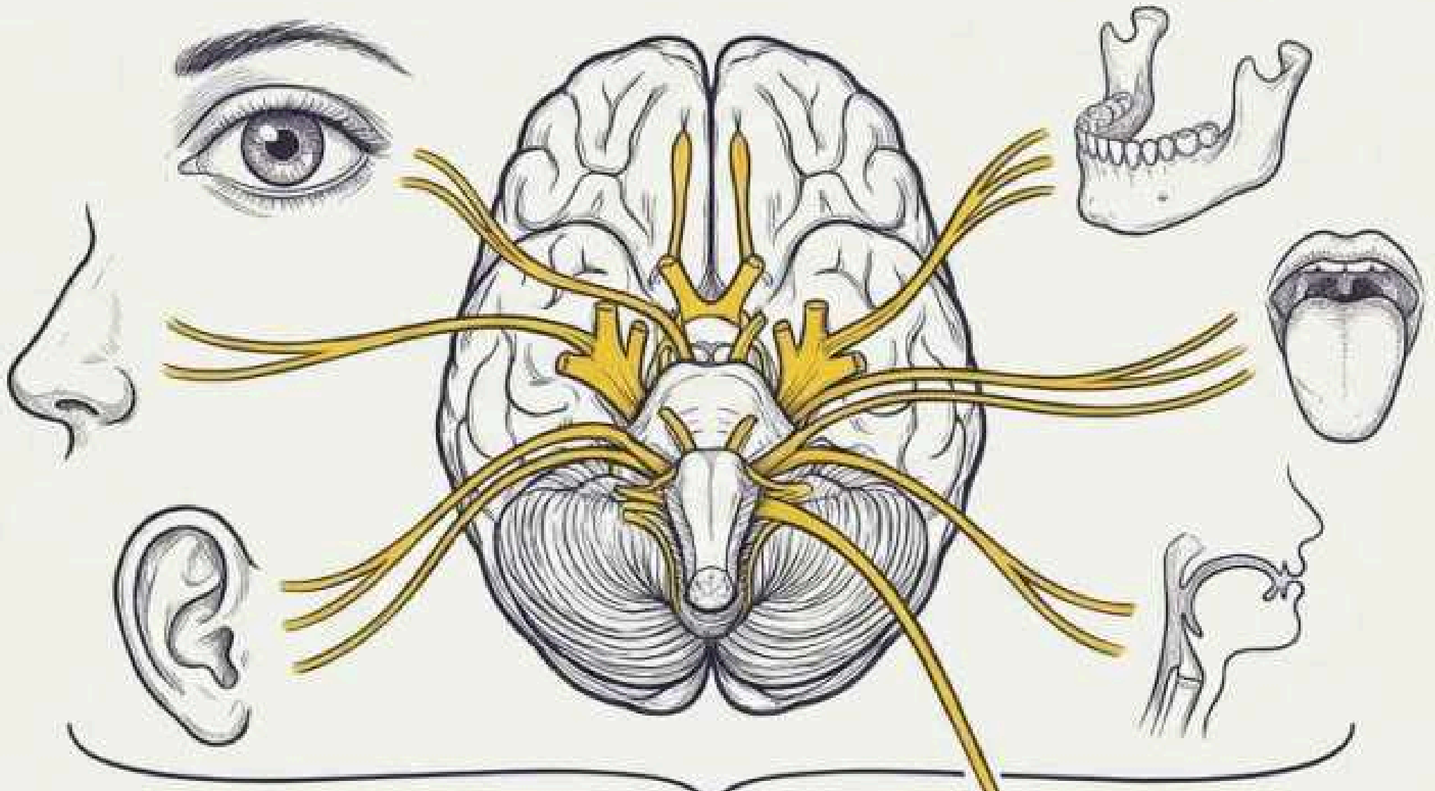
## The Closed Box



## Subdural Haematoma



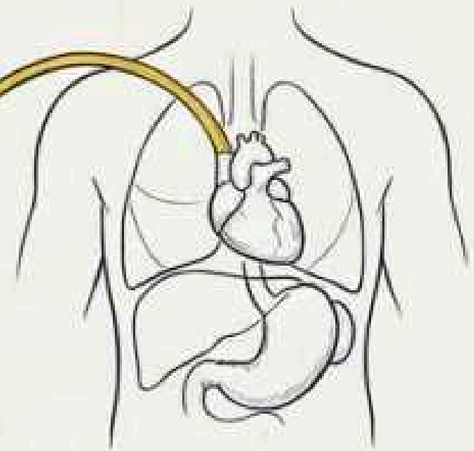
**Trigger:** More common in older people.
**Source:** Torn Veins
**Speed:** Develops slowly.

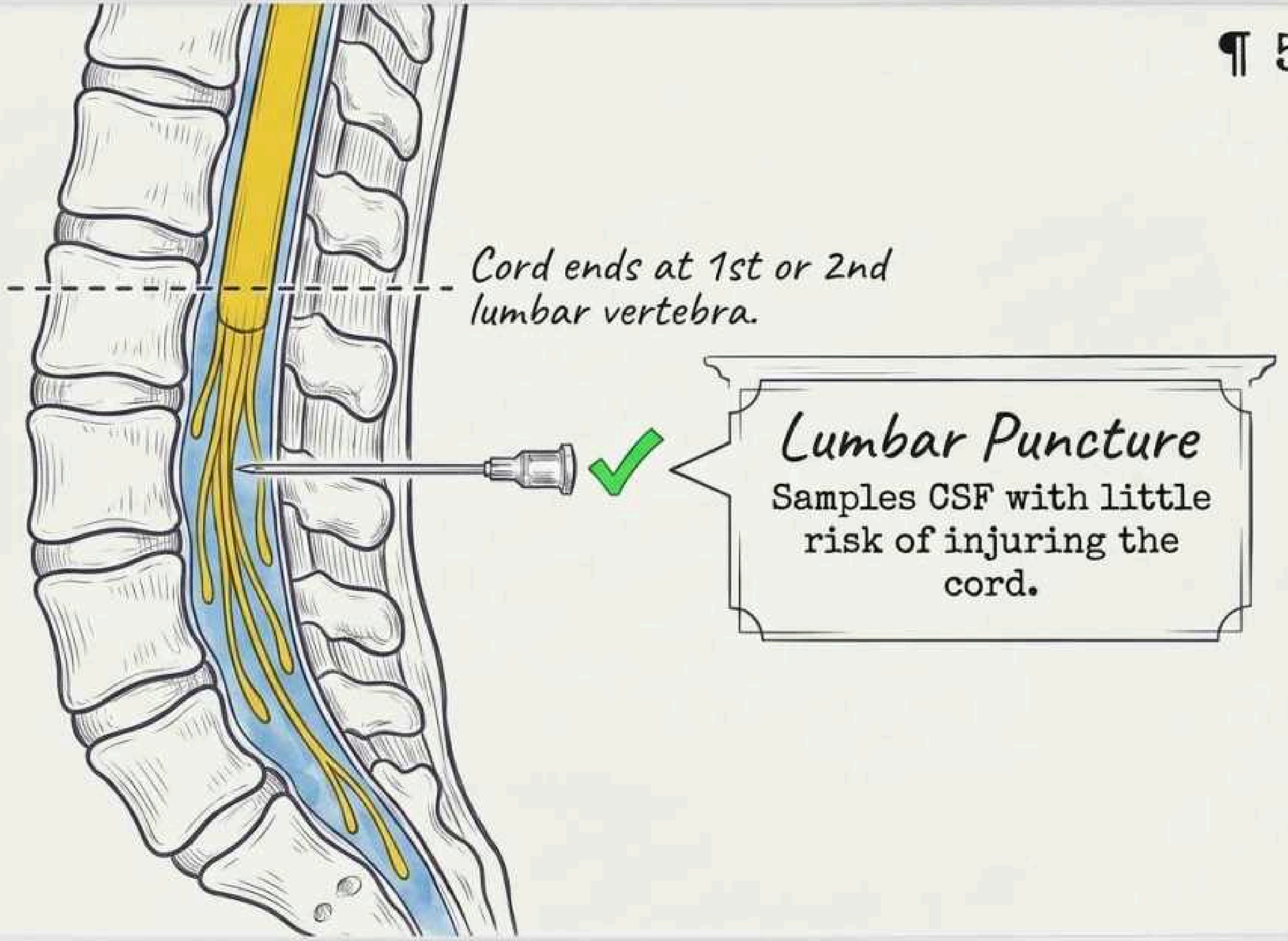


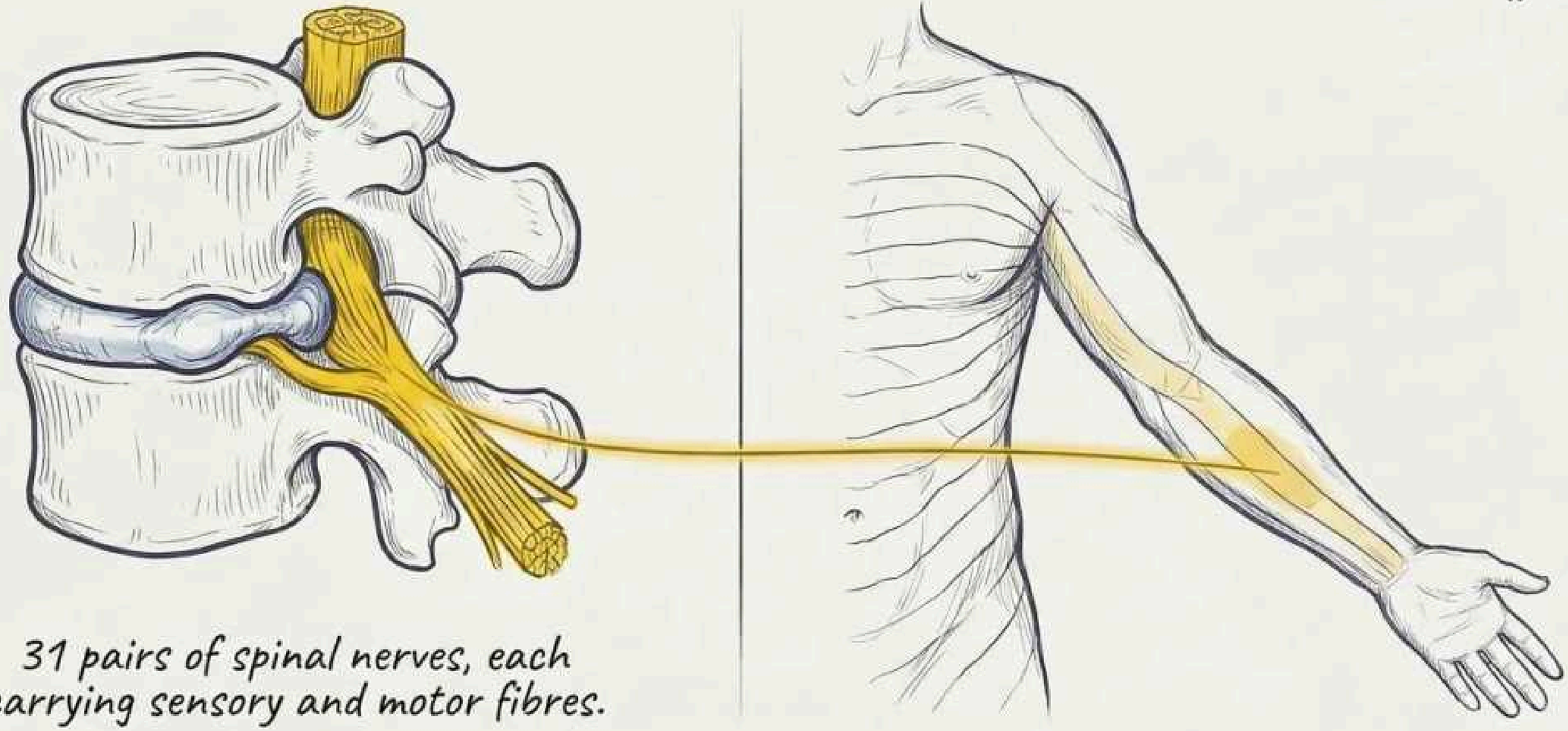
**Control:** *Eyes, face, jaw, tongue, throat*
**Special Senses:** *Smell, sight, hearing, balance, taste*

**Neurological Exam:**
Testing nerves one-by-one acts as a diagnostic map. A problem points to a precise location in the brain or skull.

**Tenth**
*(Vagus Nerve)*



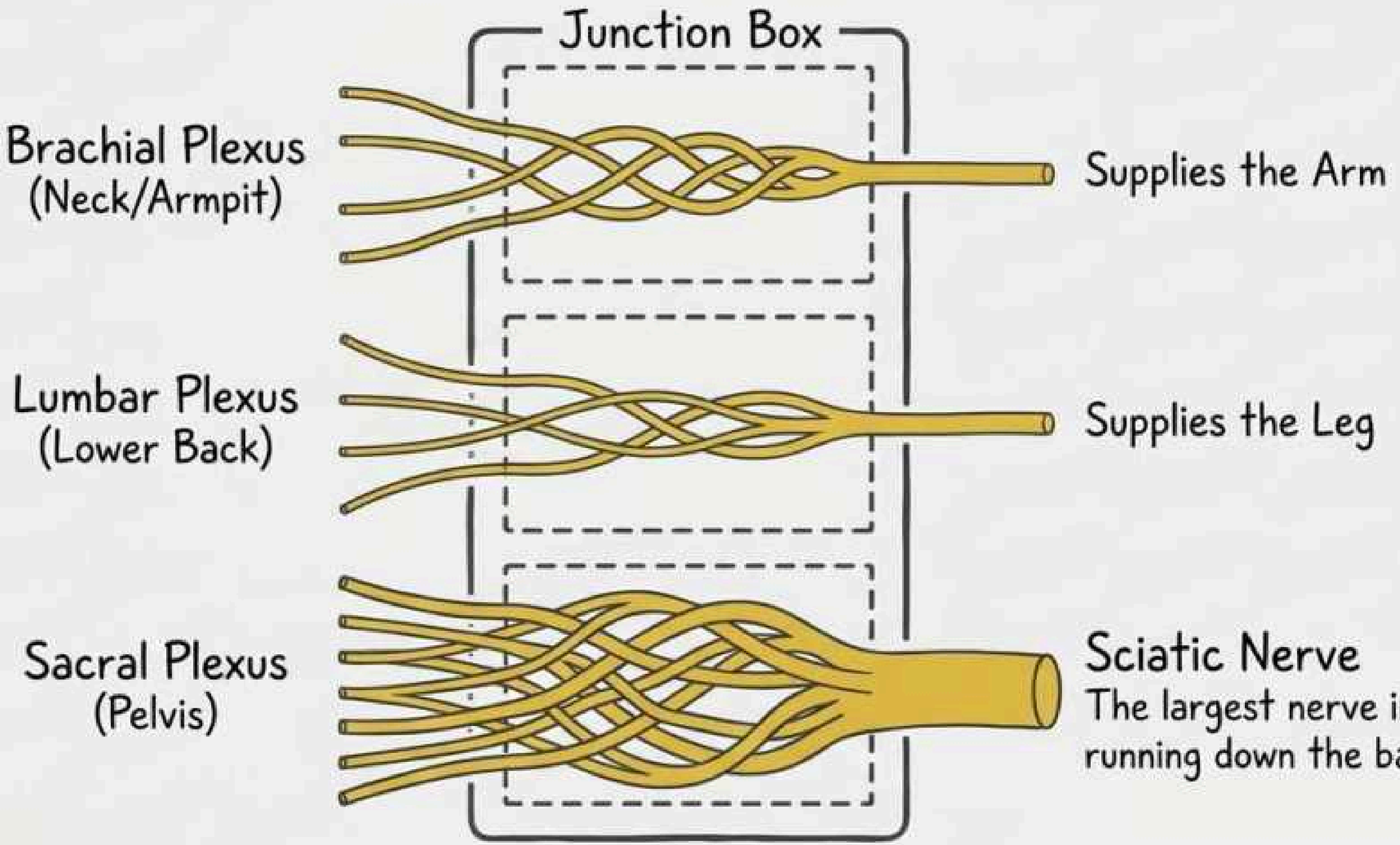

Cord ends at 1st or 2nd lumbar vertebra.
Lumbar Puncture
Samples CSF with little risk of injuring the cord.



31 pairs of spinal nerves, each carrying sensory and motor fibres.

Pain or numbness follows the root's dermatome stripe, helping doctors find the exact level of the spine problem.

# Plexuses: Where fibres are mixed and sorted to form the named nerves of the limbs.

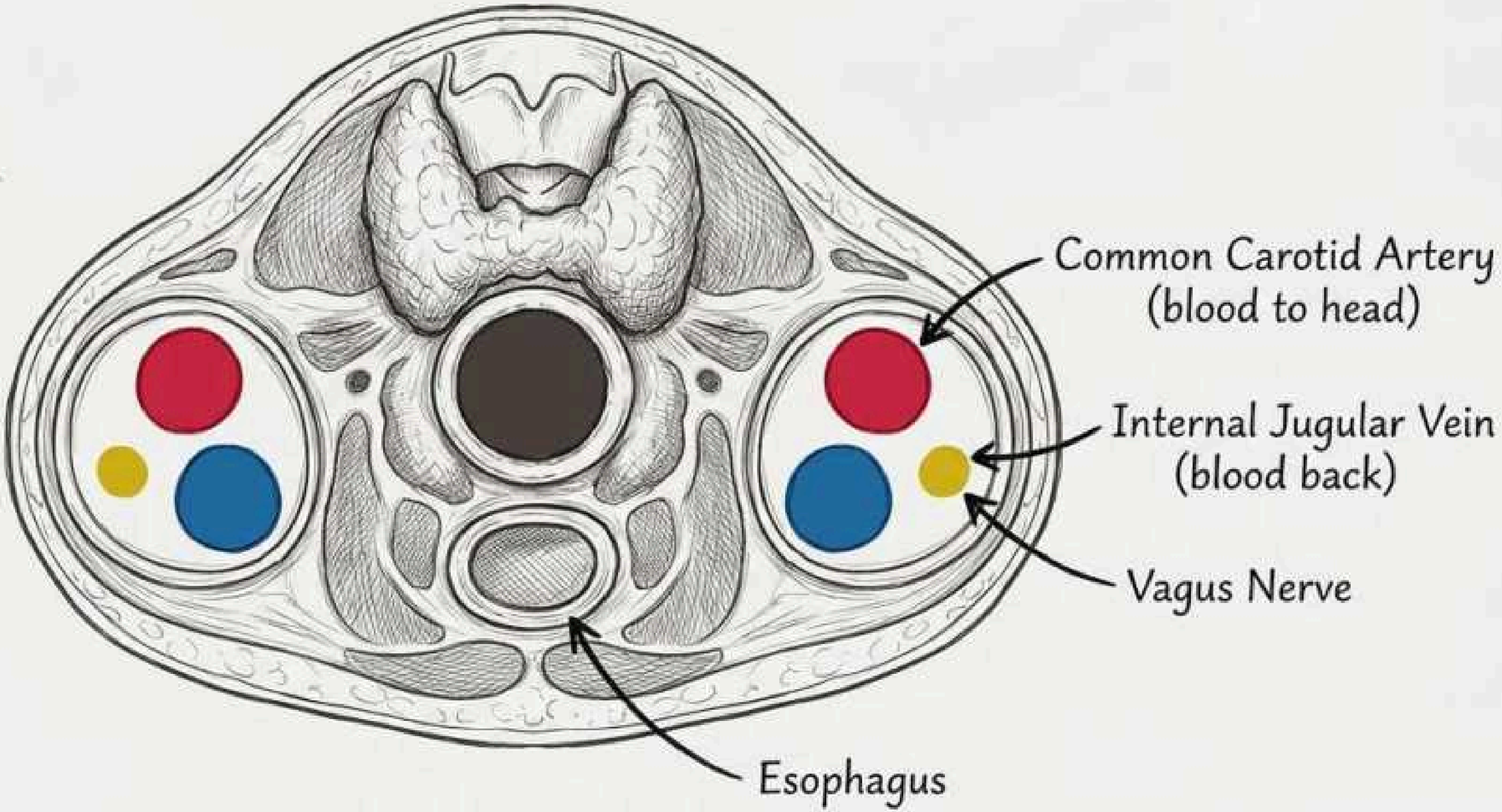



Lecture 6 will follow these into the limbs.

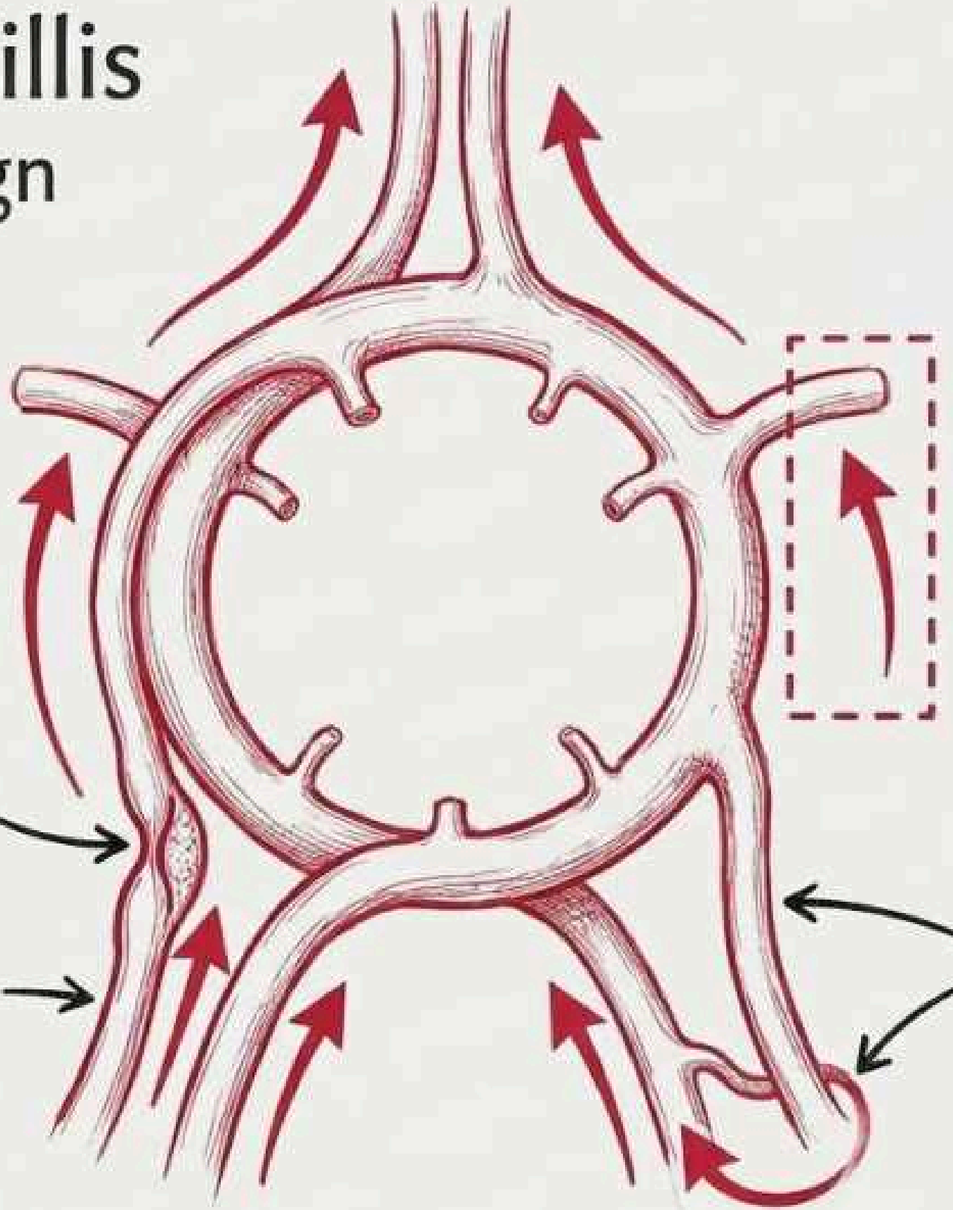
# The Neck: A crowded corridor between head and trunk.



Feeling the carotid pulse in front of the large turning muscle.



# The Circle of Willis
## Vital Safety Design



Pinch point blockage

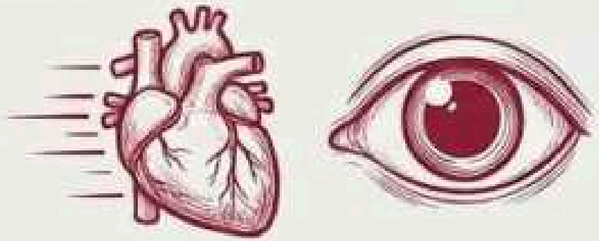
Carotid Arteries

**Normal Variation:**
As warned in Lecture 1, the circle is often incomplete in many people.

**Vertebral Arteries**
Climbing through neck vertebra holes.

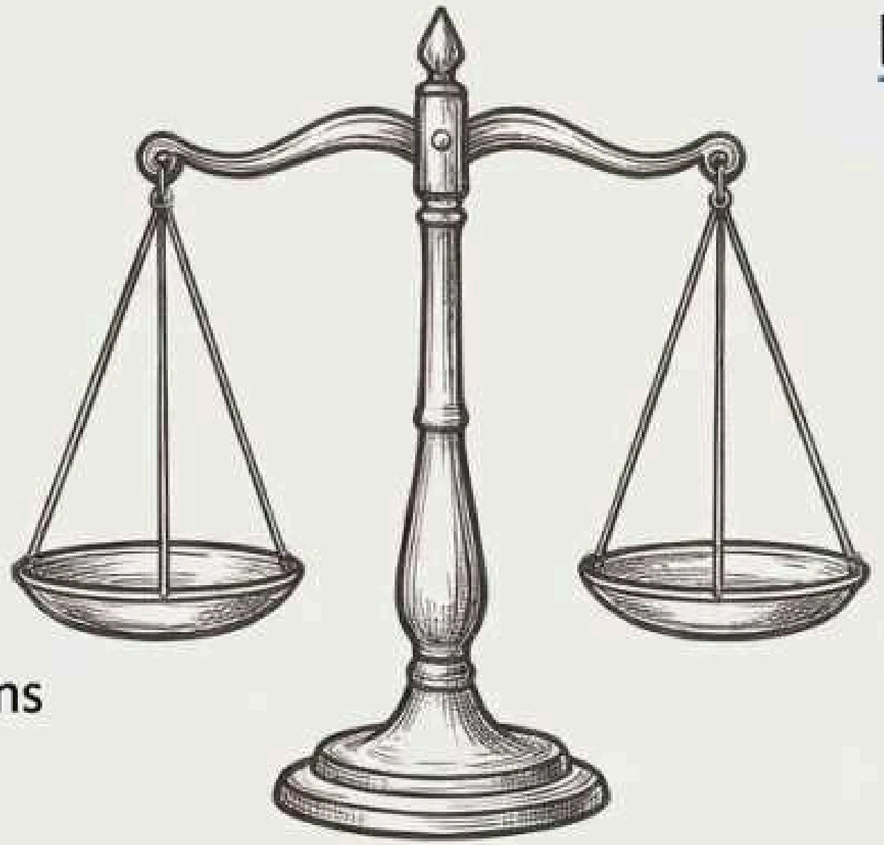
# The Autonomic Nervous System (Unconscious Control)

## Sympathetic Division

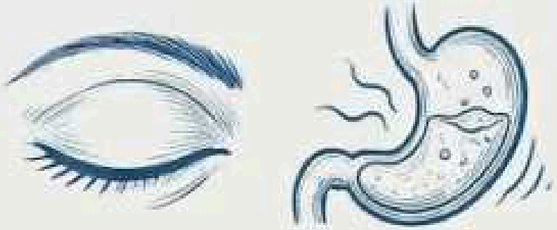


Keyword: ACTION
Prepares the body for action, speeding the heart and widening pupils.

Anatomy: Nerve cells form chains of ganglia alongside the spine.



## Parasympathetic Division

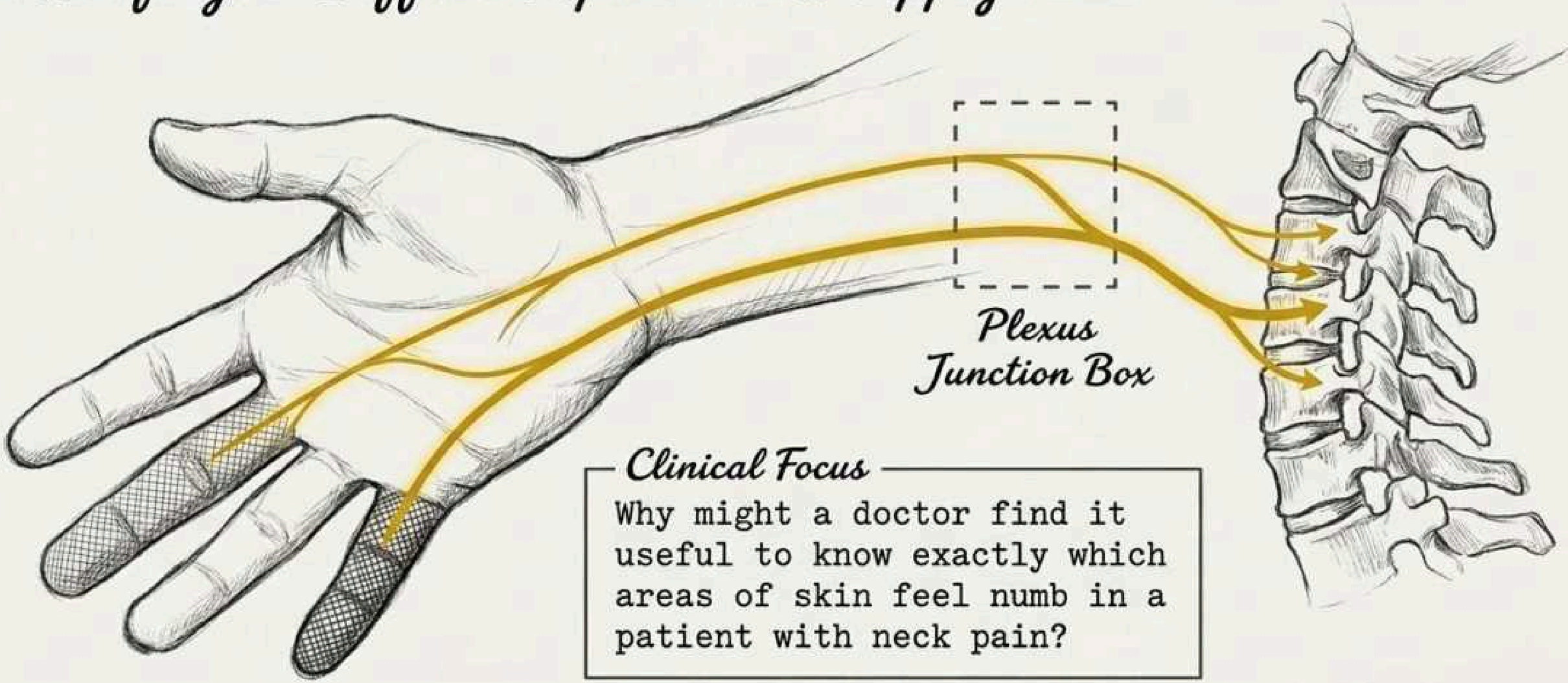


Keyword: REST
Favours rest and digestion.

Anatomy: Much of it travels in the wandering Vagus Nerve.

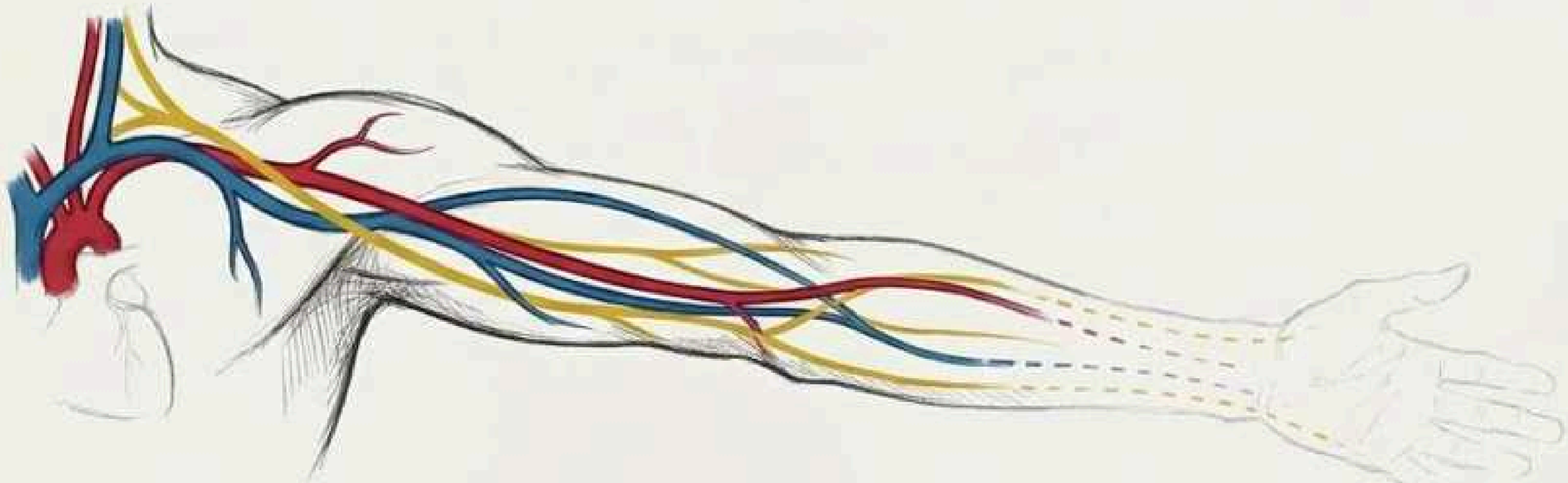
Pharmacology Link: Many common medicines specifically target one division or the other.

*Gently touch the skin of your middle finger, then your little finger. Different spinal roots supply each.*




**Clinical Focus**

Why might a doctor find it useful to know exactly which areas of skin feel numb in a patient with neck pain?



**Next: We follow the nerves and vessels into the limbs.**

*Seeing how foundational anatomy transforms into clinical application.*

