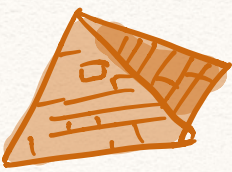


ADRENAL GLANDS



GLOMERULOSA

FASCICULATA

RETICULARIS

MEDULLA

CORTEX

MINERALCORTICOIDS

ALDOSTERONE

RAAS pathway



kidney

GLUCOCORTICOIDS

ACTH

CORTISOL

lipid

protein
metabolism

WEAK SEX STEROIDS

♀ ANDROGENS

MODIFIED SYMPATHETIC GANGLION

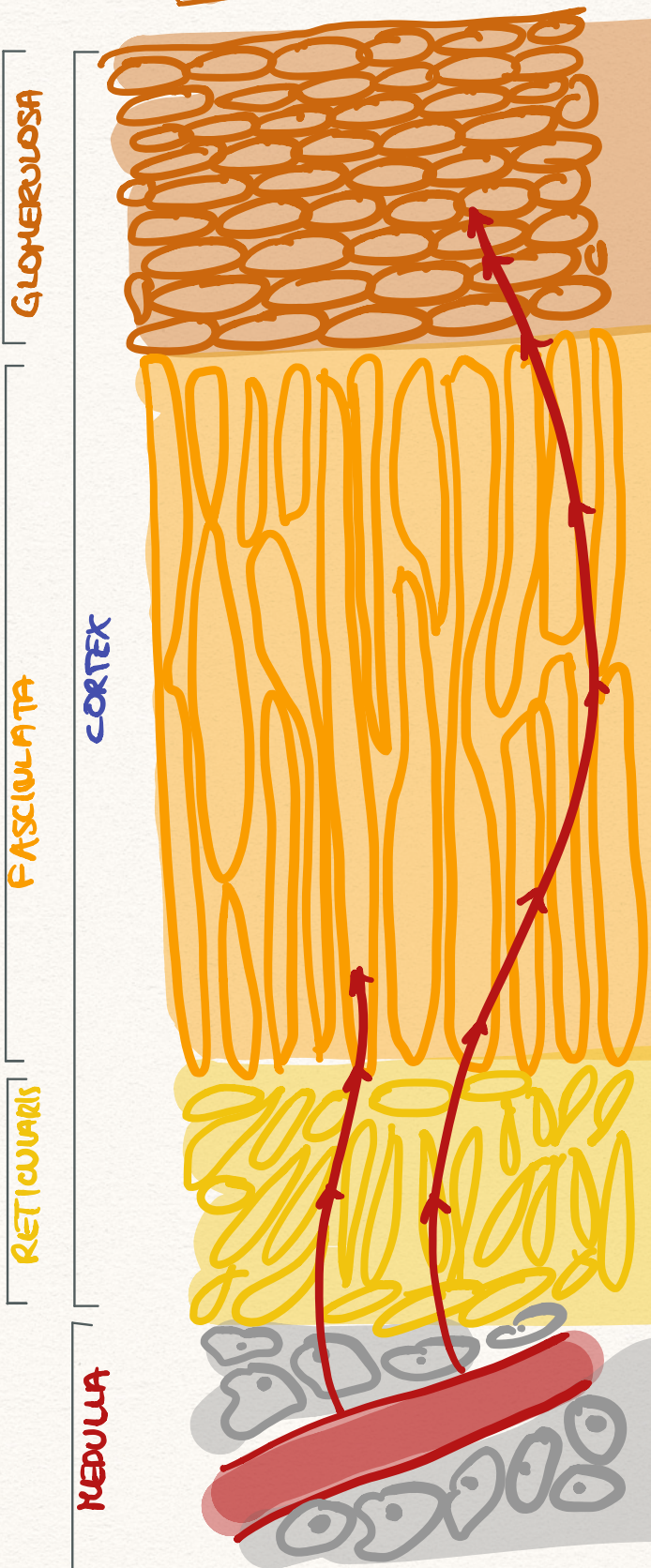
CATECHOLAMINES

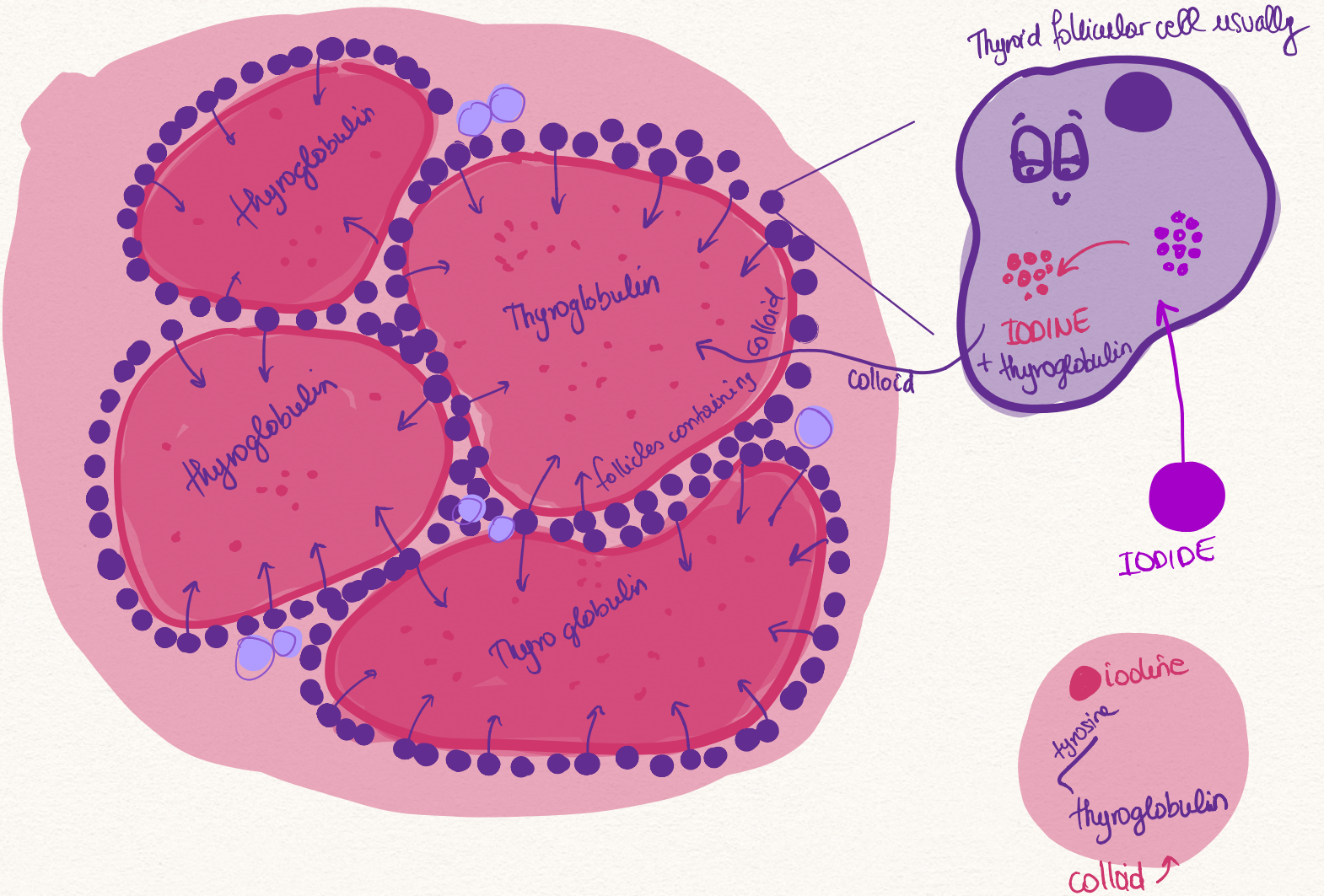
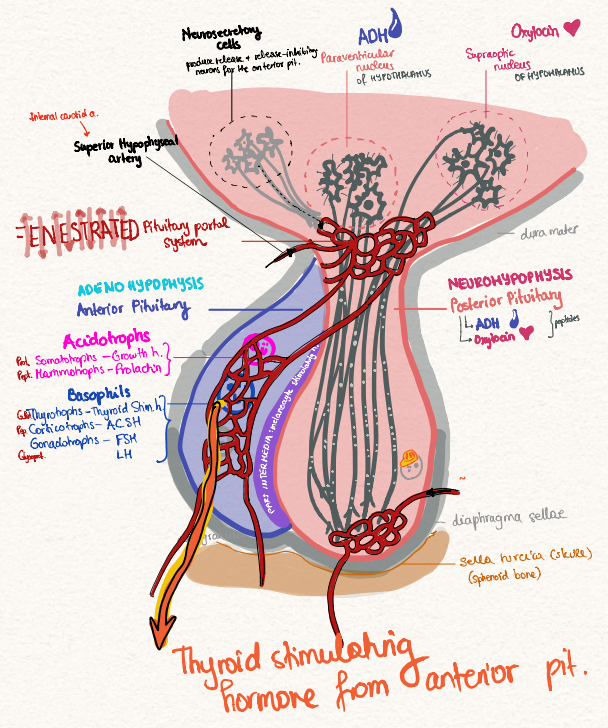
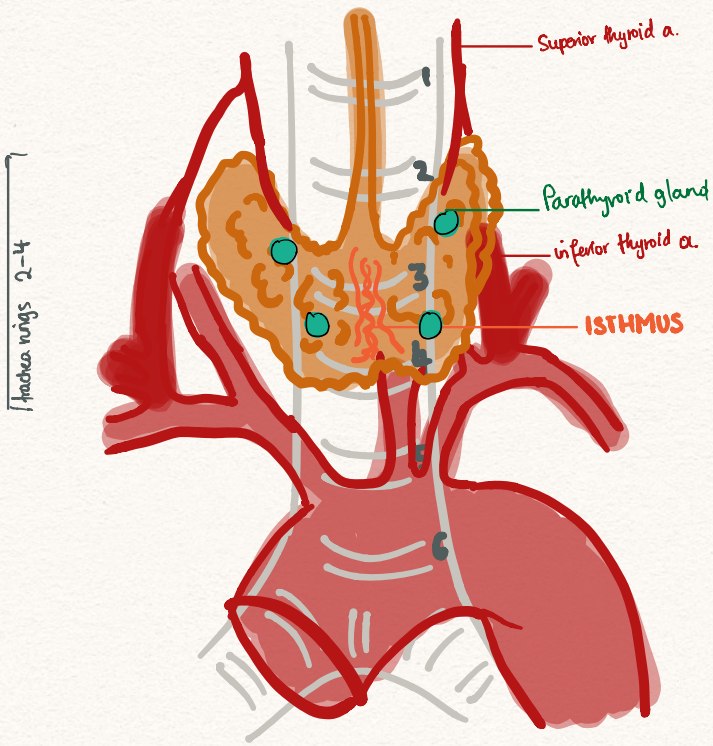
EPINEPHRIN
NOREPINEPHRIN

chromaffin cells

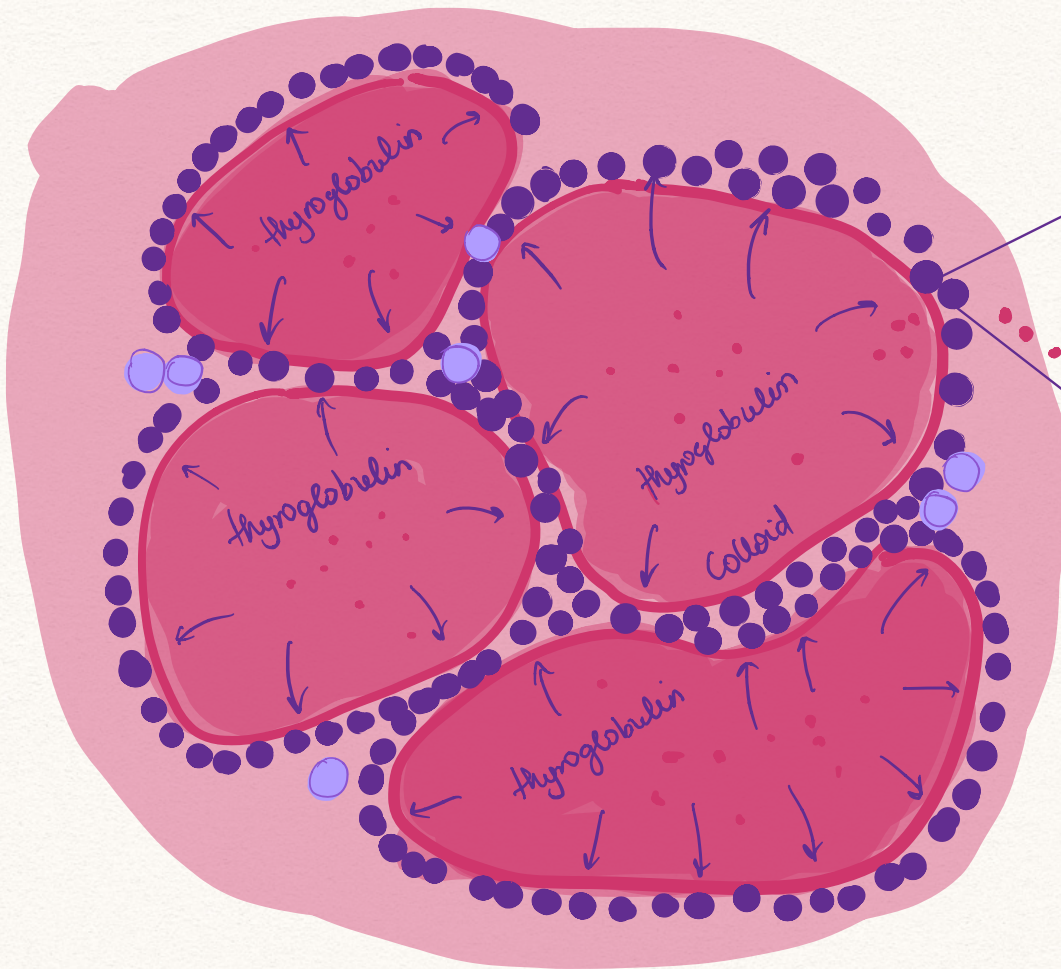
turn pale purple/brown
when stained with chromate

blood flow

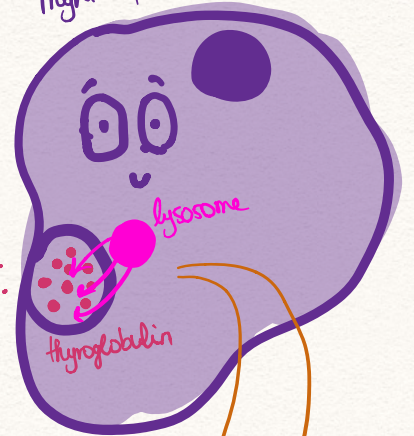




+ TSH

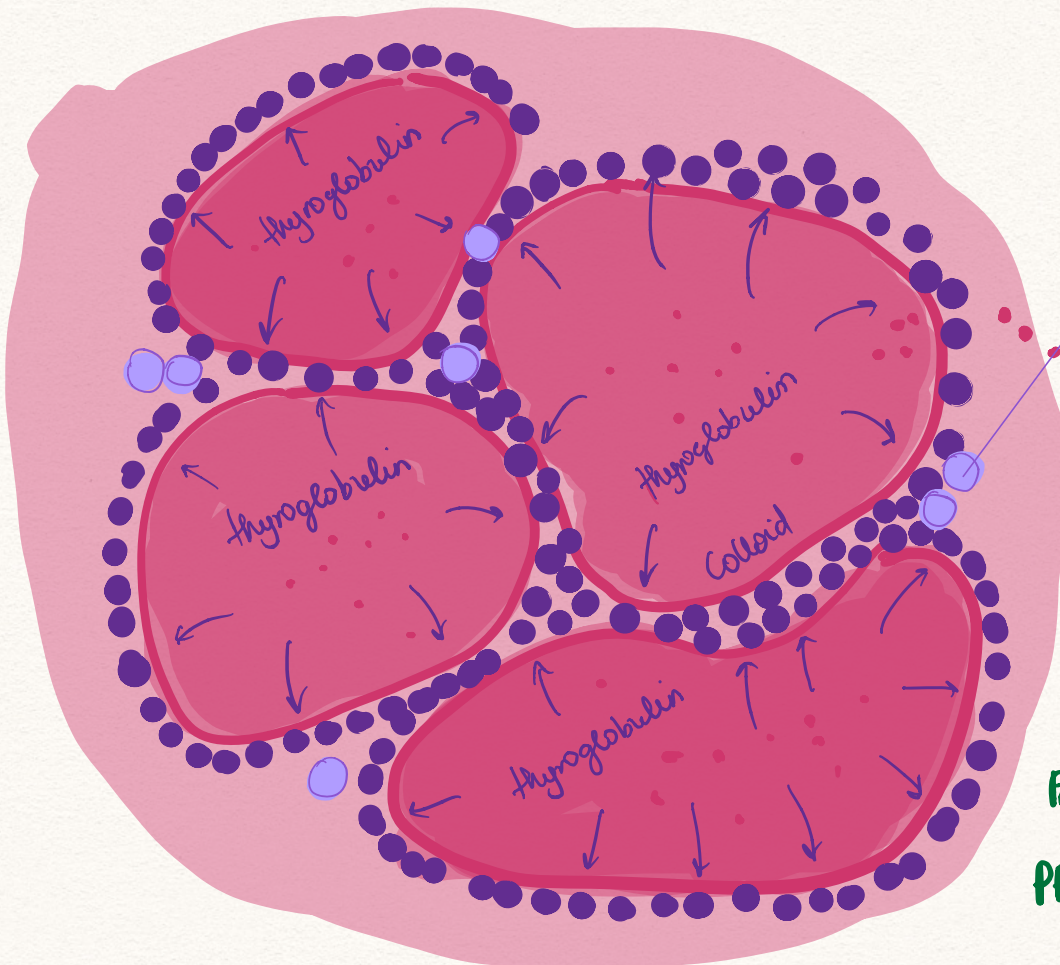


Thyroid follicular cell with TSH



T4 tetraiodothyroxine

T3 triiodothyroxine



PARAFOLICULAR CELLS

- neural origin

CALCITONIN

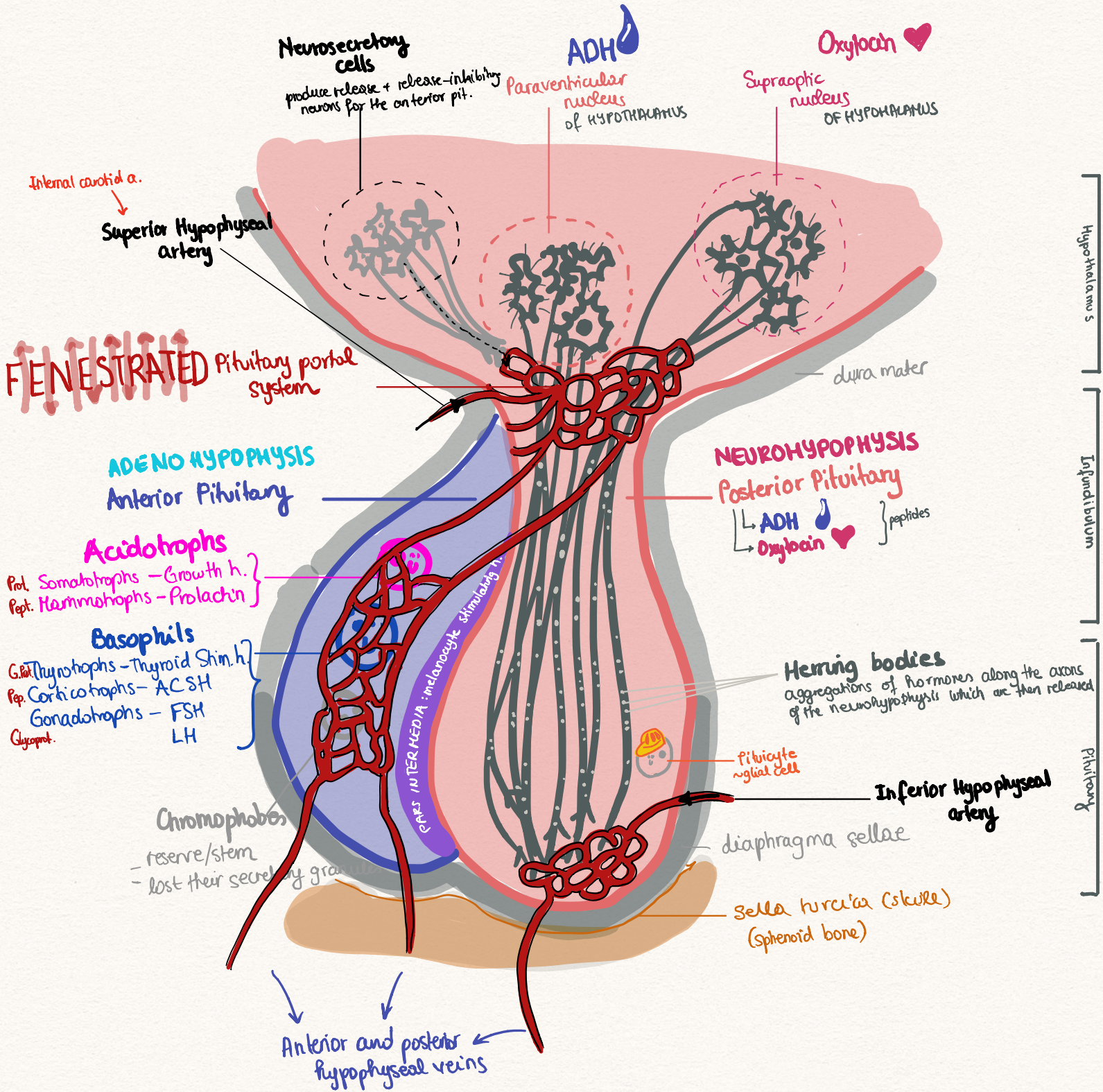
inhibit Ca^{2+} mobilisation



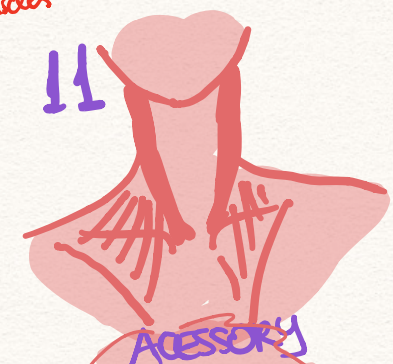
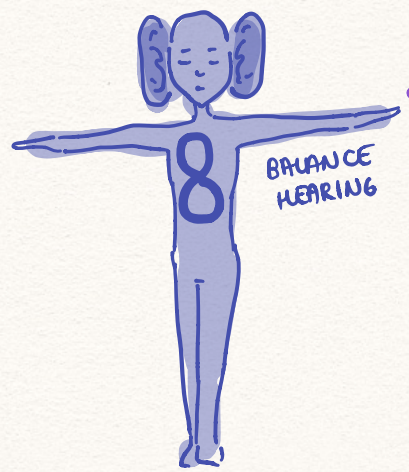
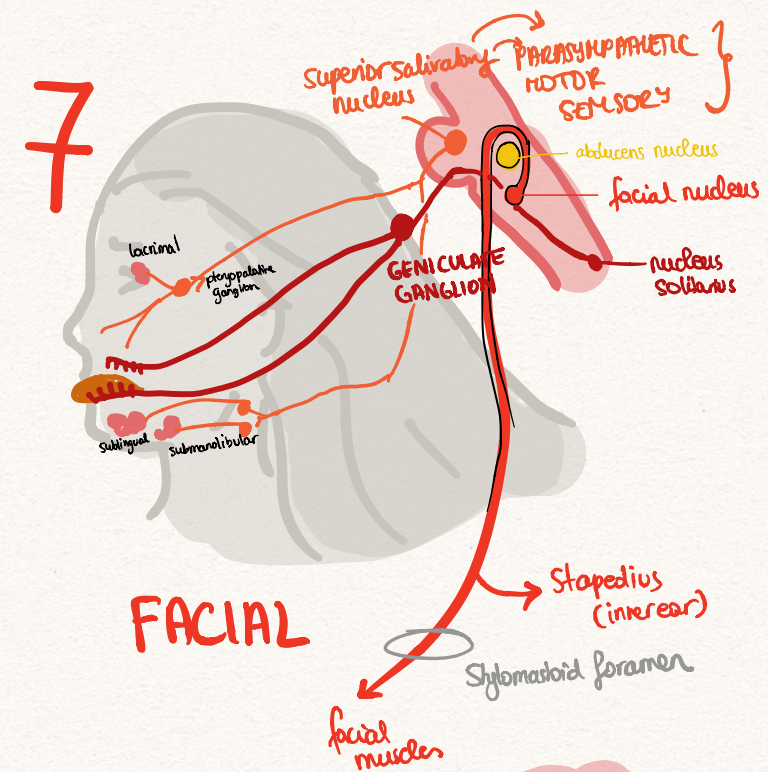
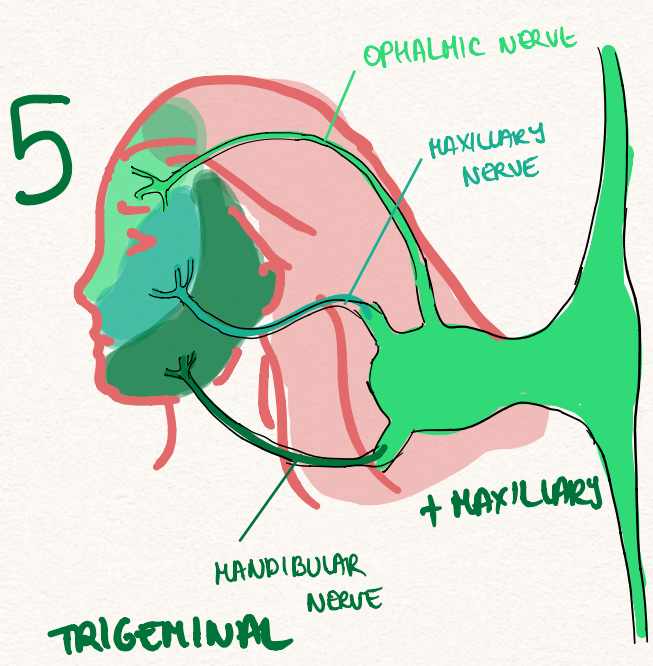
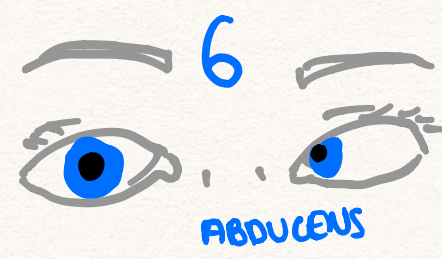
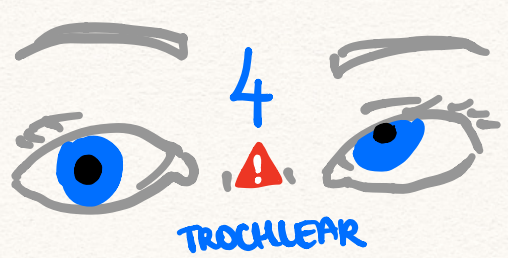
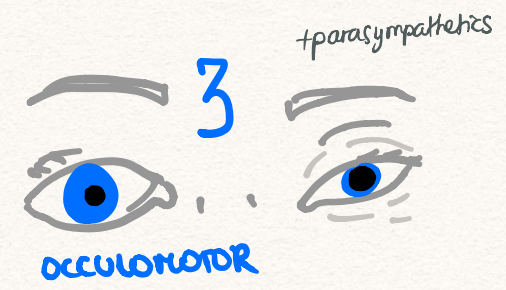
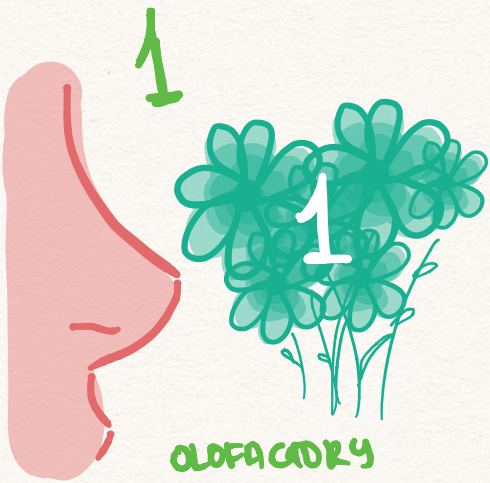
Parathyroid hormones secrete

PARATHYROID HORMONE
- calcium mobilisation

PITUITARY GLAND



ALL CRANIAL NERVES



OLFACTORY NERVES - CI



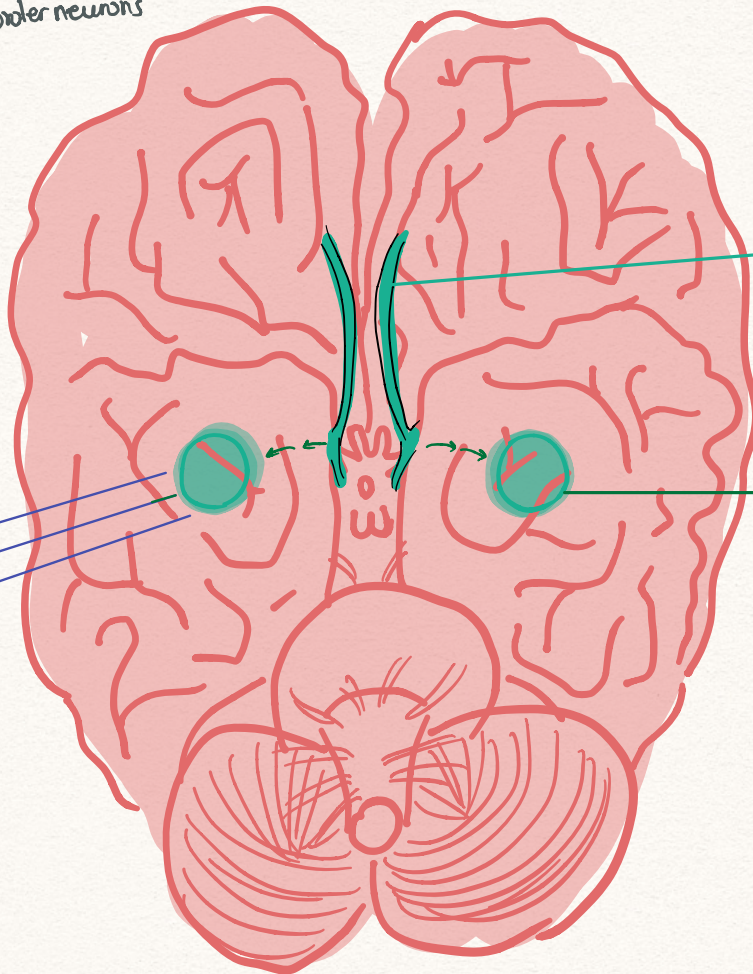
ROLE:

connect 1st order neurons in the nasal epithelium:
 olfactory neuron, with the second order neurons
 in the olfactory bulb

↓
 DIRECTLY NOTICE TEMPORAL
 LOBE OF CEREBRAL CORTEX

emotion ♥
 memory *

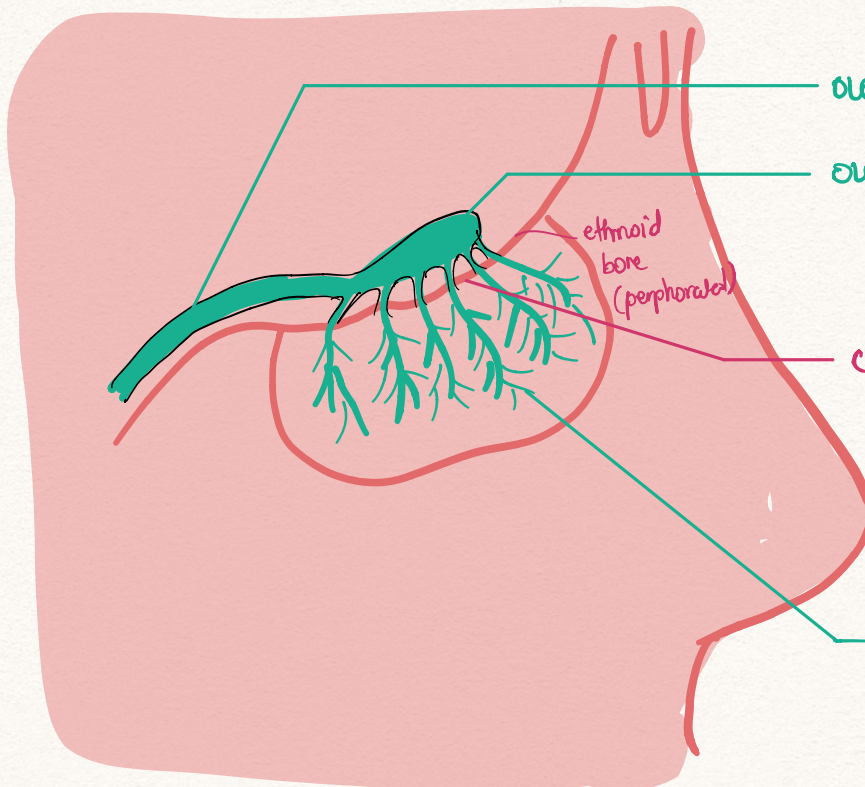
AMYGDALA
 ENTORHINAL CORTEX
 HIPPOCAMPUS
 THALAMUS



①
 OLOFACTORY
 TRACT

(Olofactory nerve is CI)

②
 OLFACTORY CORTEX:
 - OFACTORY TUBERCLE
 - PIRIFORM CORTEX



OLFACTORY TRACT

OLFACTORY BULB
 second order neurons

CRIBRIFORM PLATE

OLFACTORY NERVES CI
 first order neurons

OPTIC NERVE - C11



ROUTE:

First-order neurons are:

Optic nerves C11

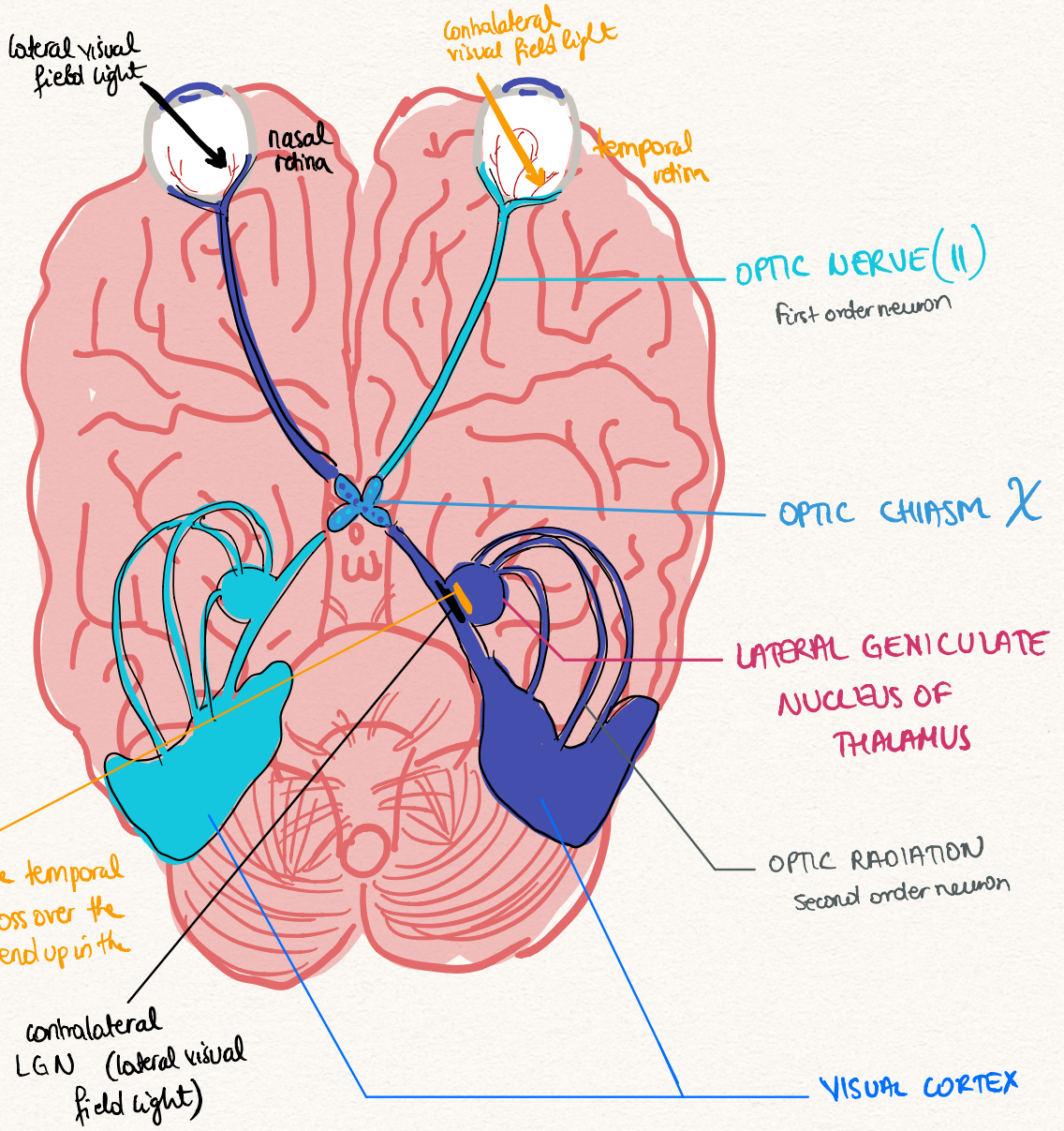
↓
optic chiasm

Second order neurons:

Optic tract

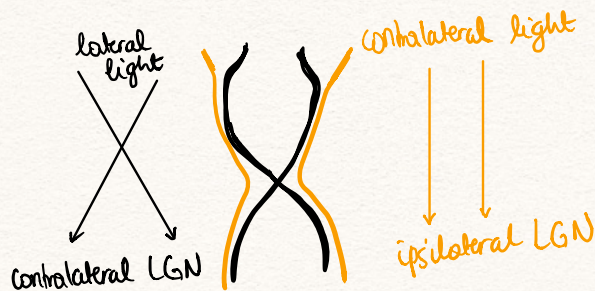
↓
LATERAL GENICULATE NUCLEUS, THALAMUS

↓
Visual cortex



these neurons in the temporal retina do NOT cross over the optic chiasma -> end up in the ipsilateral LGN

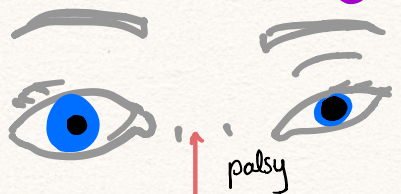
contralateral LGN (lateral visual field light)



OCULOMOTOR NERVE CIII

- most eye muscles
- levator palpebrae muscle (upper eyelid)

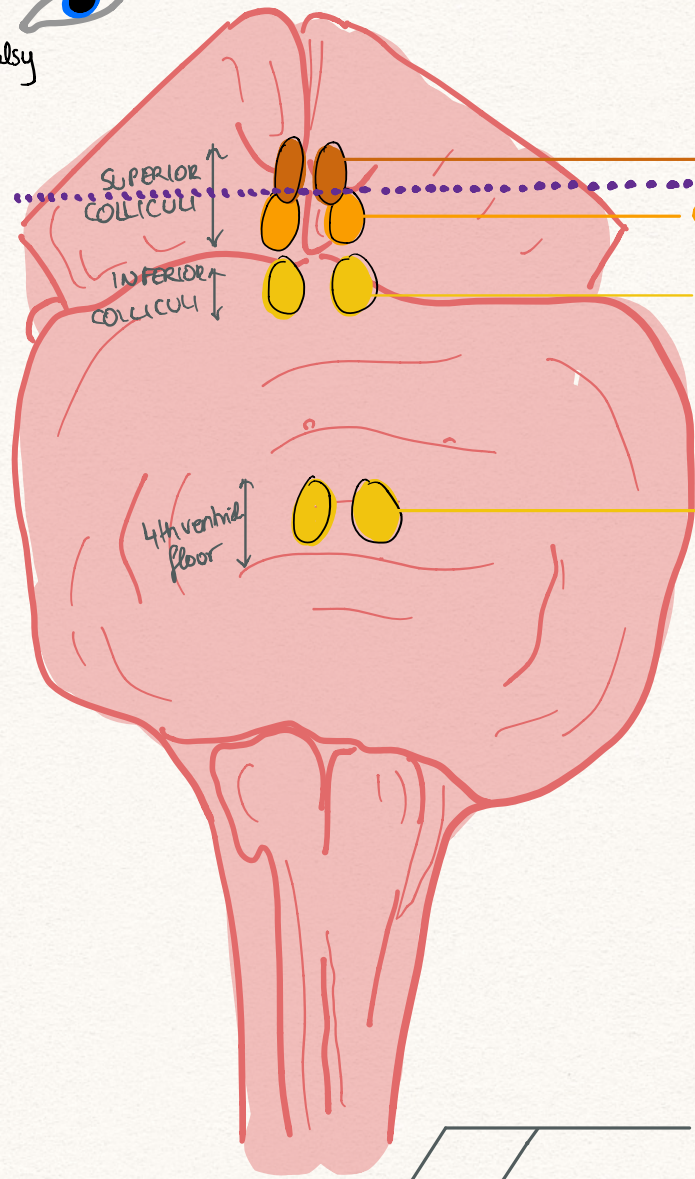
+ PARASYMPATHETIC FIBRES



MIDBRAIN

PONS

MEDULLA



EDINGER-WESTPHAL NUCLEUS

OCULOMOTOR NUCLEUS

TROCHLEAR NUCLEUS

ABDUCENS NUCLEUS

CIII

CIV

CVI

SUPERIOR COLLICULI

INFERIOR COLLICULI

4th ventricle floor

} S

} I

} 4th vent

SUPERIOR COLLICULI

CEREBRAL AQUEDUCT

EDINGER-WESTPHAL NUCLEUS

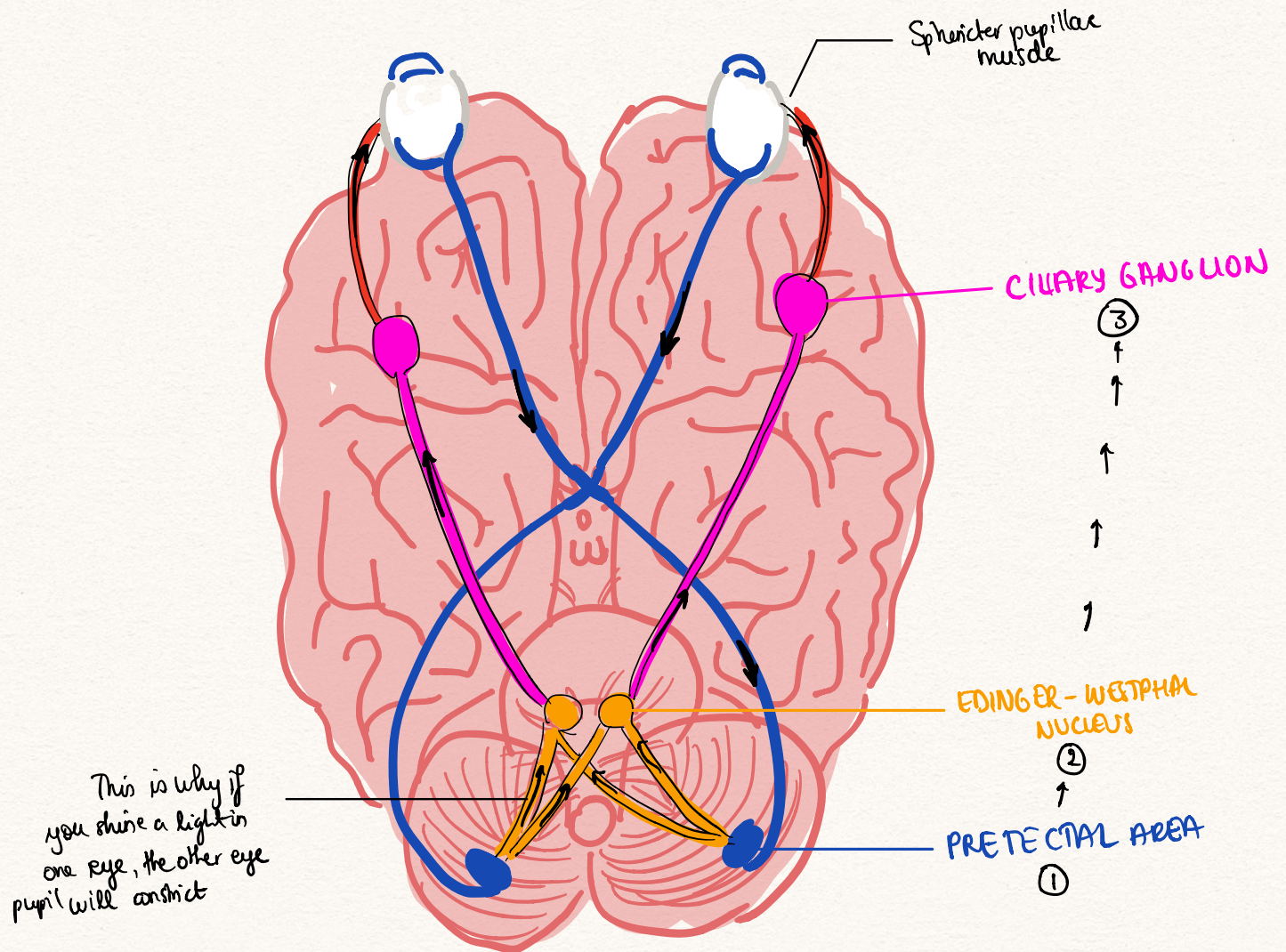
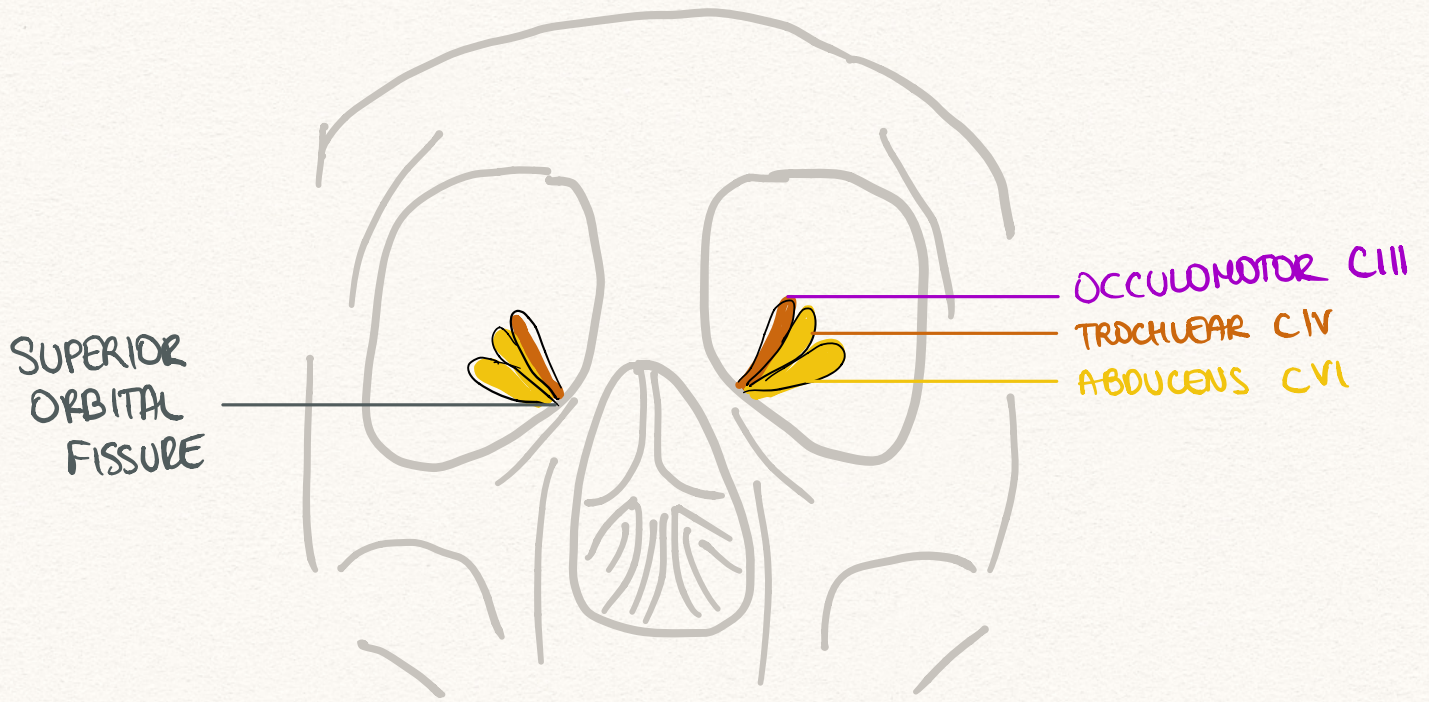
OCULOMOTOR NUCLEUS

ROOTS OF OCULOMOTOR NERVE CIII

SUPERIOR COLLICULUS

D

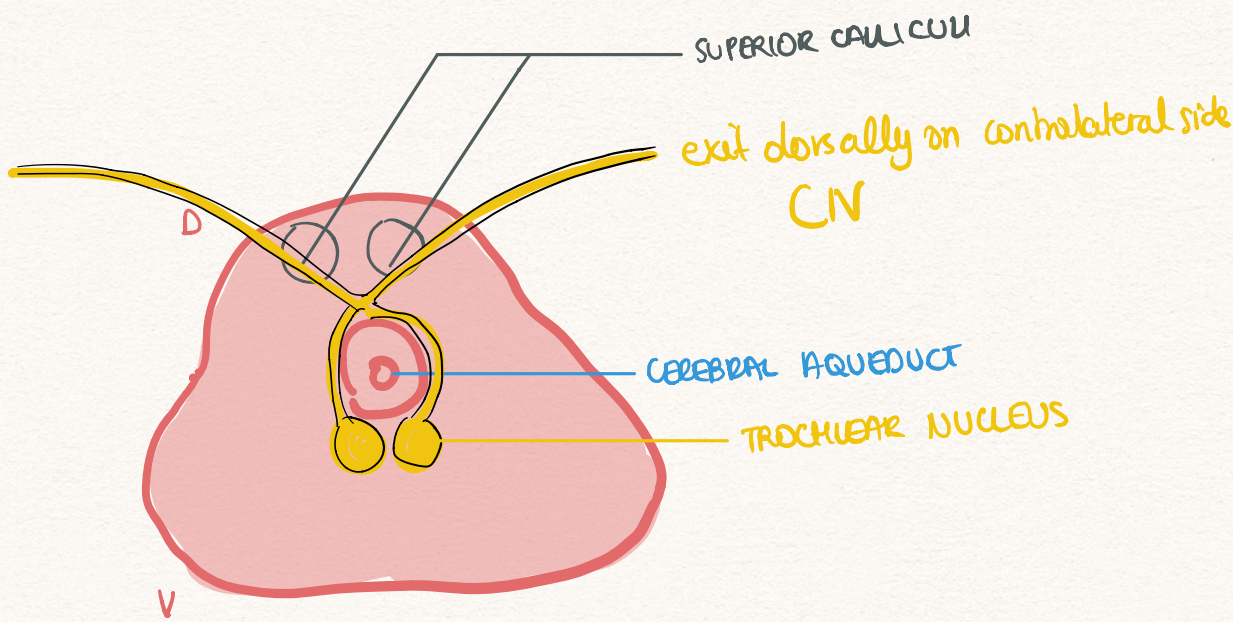
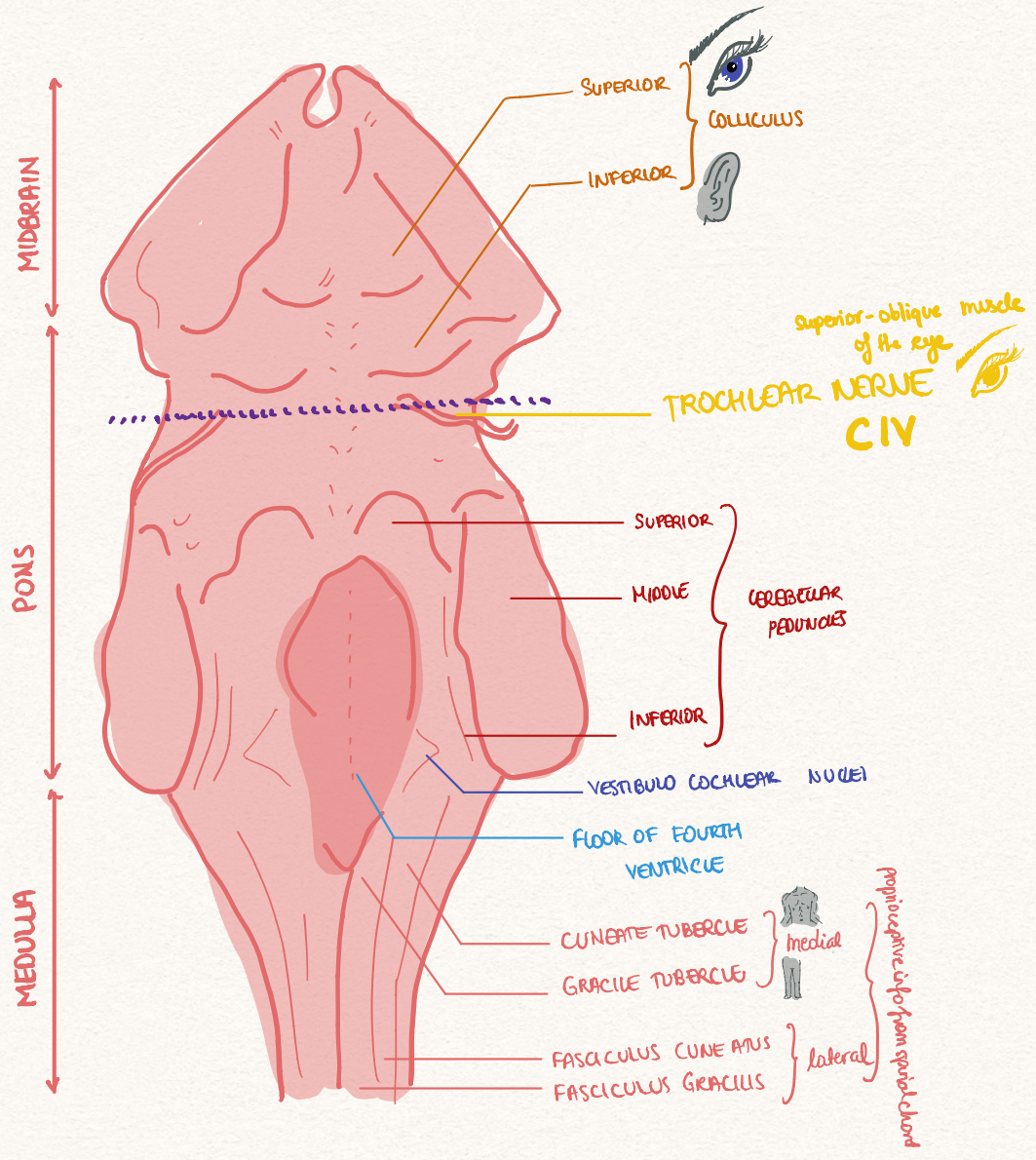
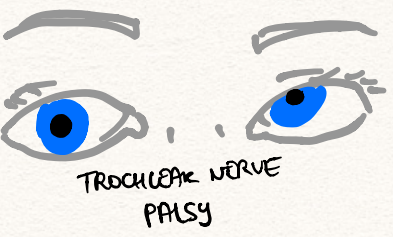
V



*Superior oblique muscle

TROCHLEAR NERVE - CIV

The only nerve that exits the brainstem dorsally



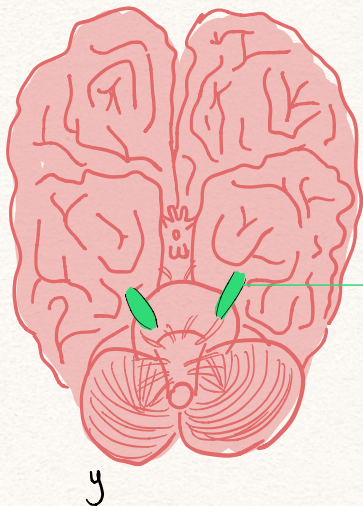
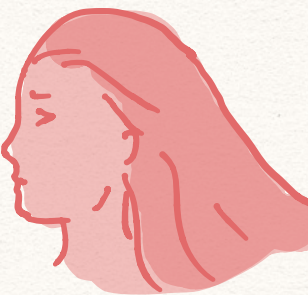
TRIGEMINAL NERVE CV



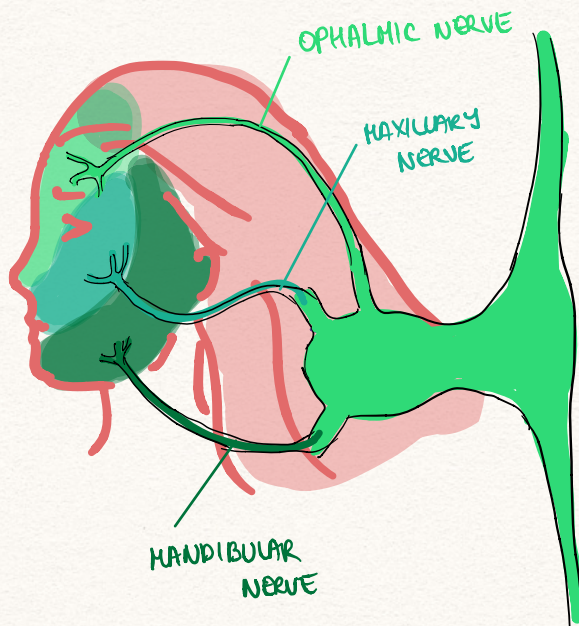
motor
chewing

sensory

INNERVATION OF
FACE



TRIGEMINAL NERVE
(biggest of brainstem)



OPHTHALMIC NERVE

MAXILLARY NERVE

MANDIBULAR NERVE

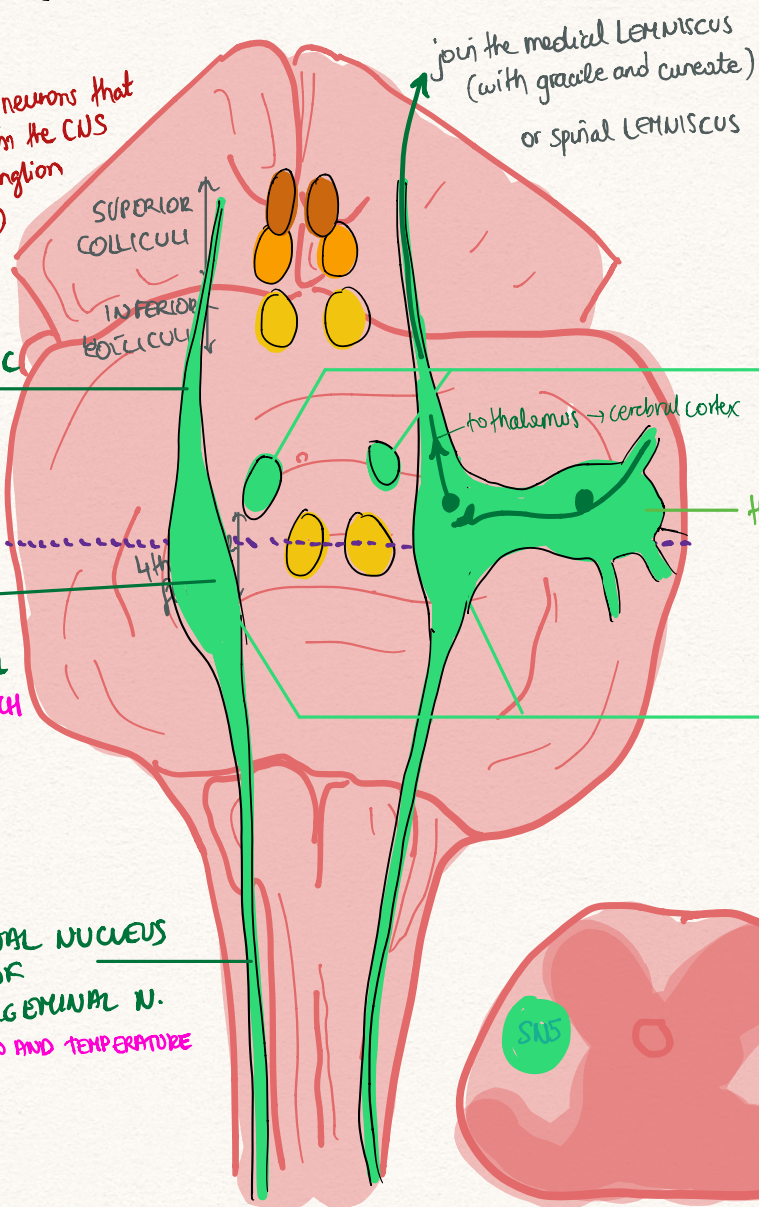


! the only sensory neurons that are located within the CNS and not in a ganglion (mandible mostly)

MESENCEPHALIC NUCLEUS OF TRIGEMINAL PROPRIOCEPTION

CHIEF/HAIN NUCLEUS OF TRIGEMINAL DISCRIMINATIVE TOUCH

SPINAL NUCLEUS OF TRIGEMINAL N. PAIN AND TEMPERATURE

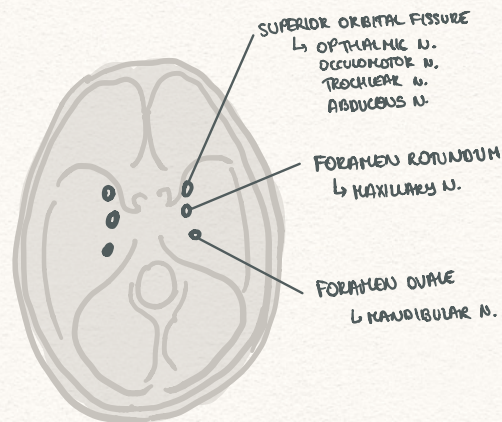
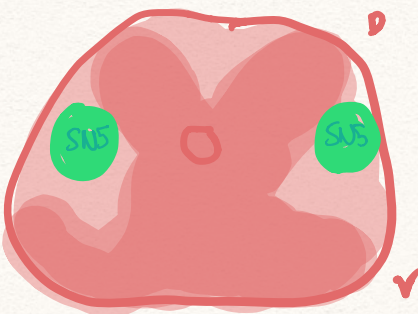


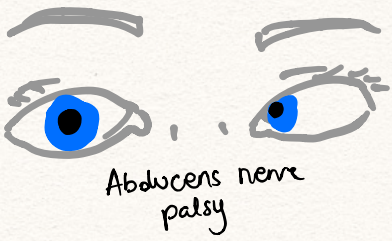
MOTOR NUCLEUS OF TRIGEMINAL MASTICATION MUSCLES

this is where most of the bodies of the neurons lie (like spinal chord)

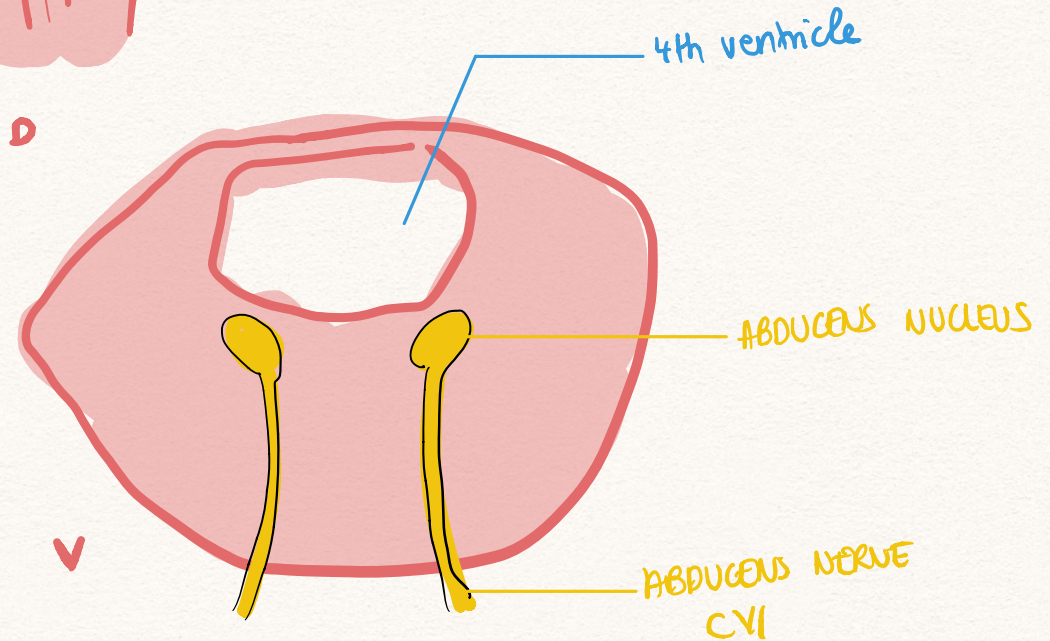
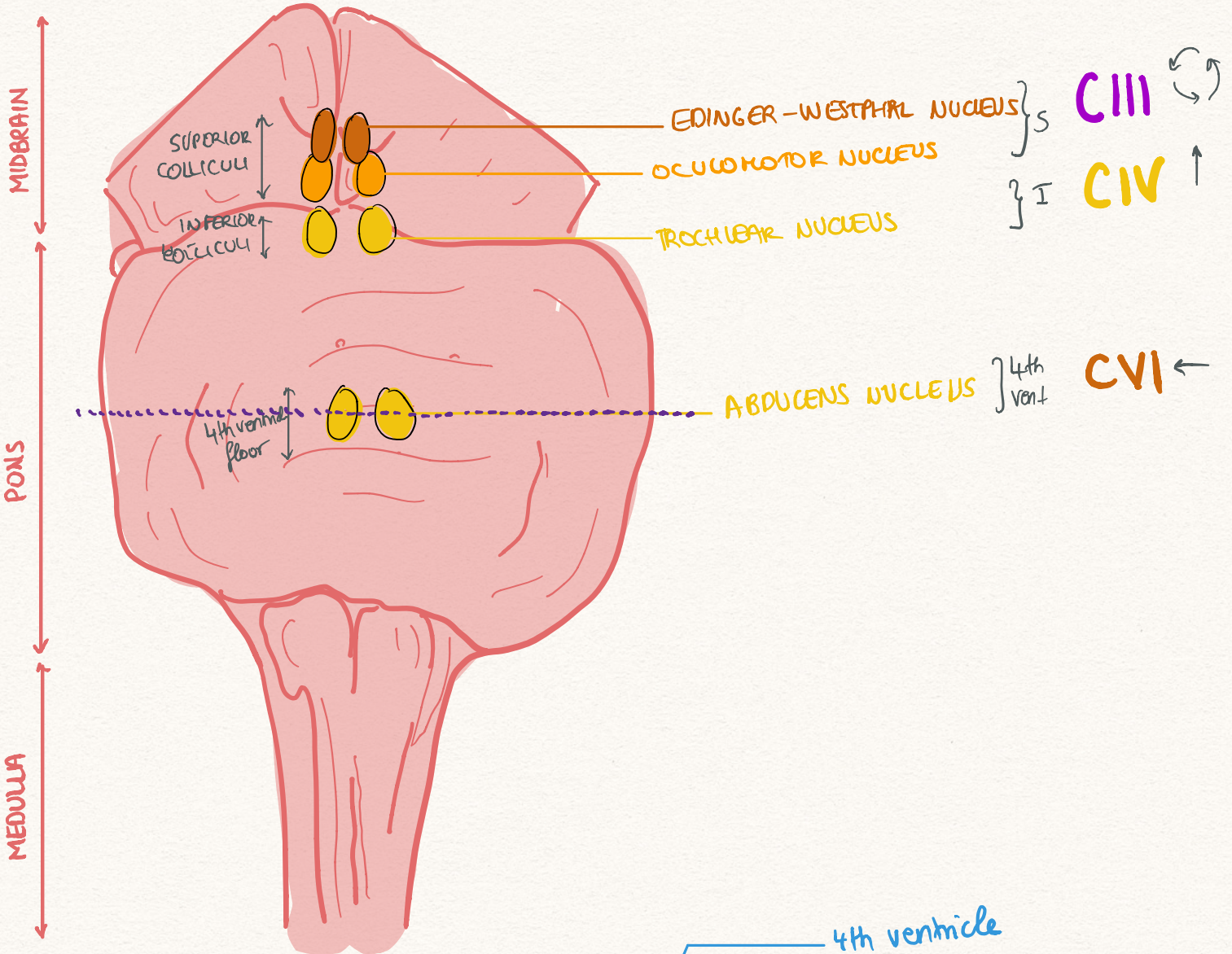
TRIGEMINAL/SEMILUMBAR GANGLION

SENSORY NUCLEUS OF TRIGEMINAL




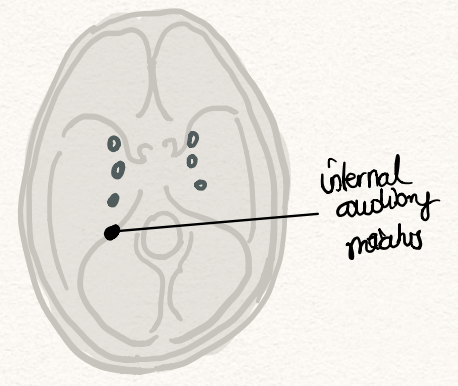
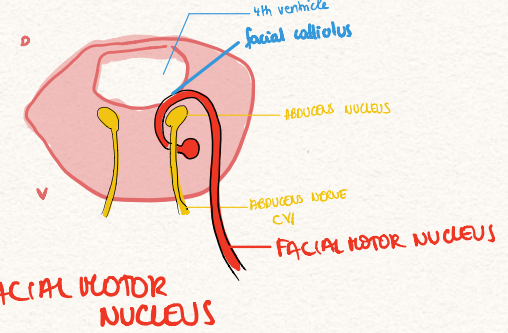
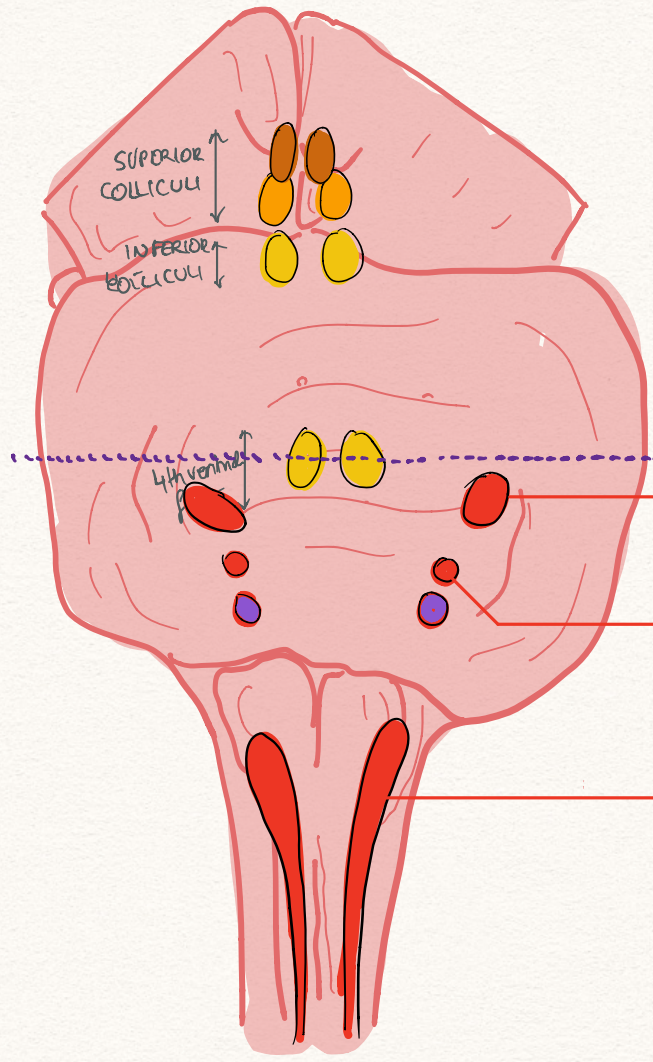
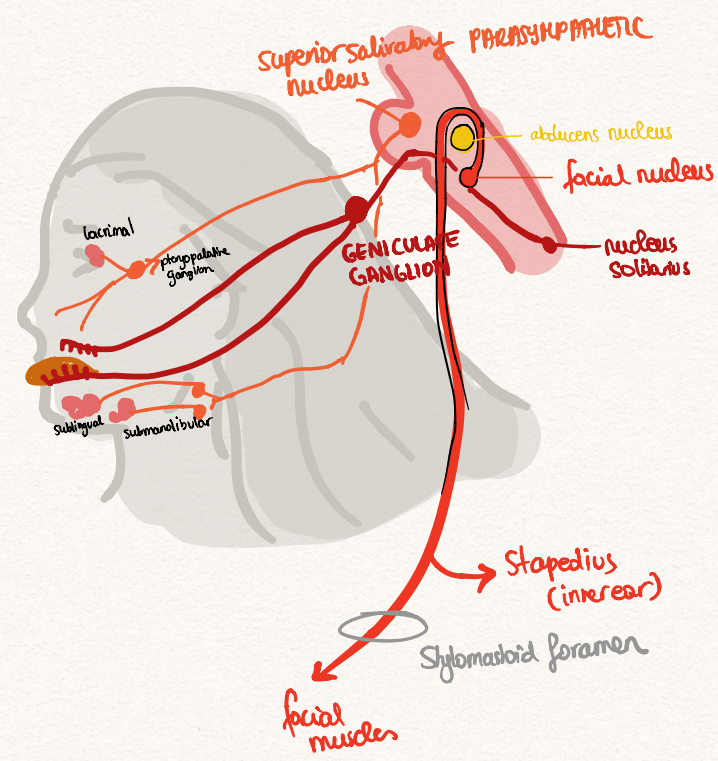
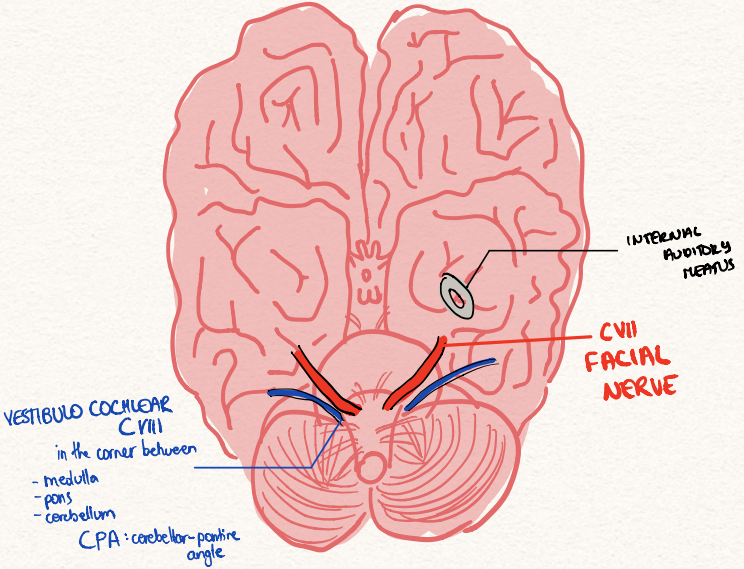


ABDUCENS NERVE CVI # lateral rectus muscle



FACIAL NERVE CVII

motor
sensory
parasympathetic

VESTIBULOCOCHLEAR NERVE C VIII

hair cells of inner ear



BALANCE
HEARING

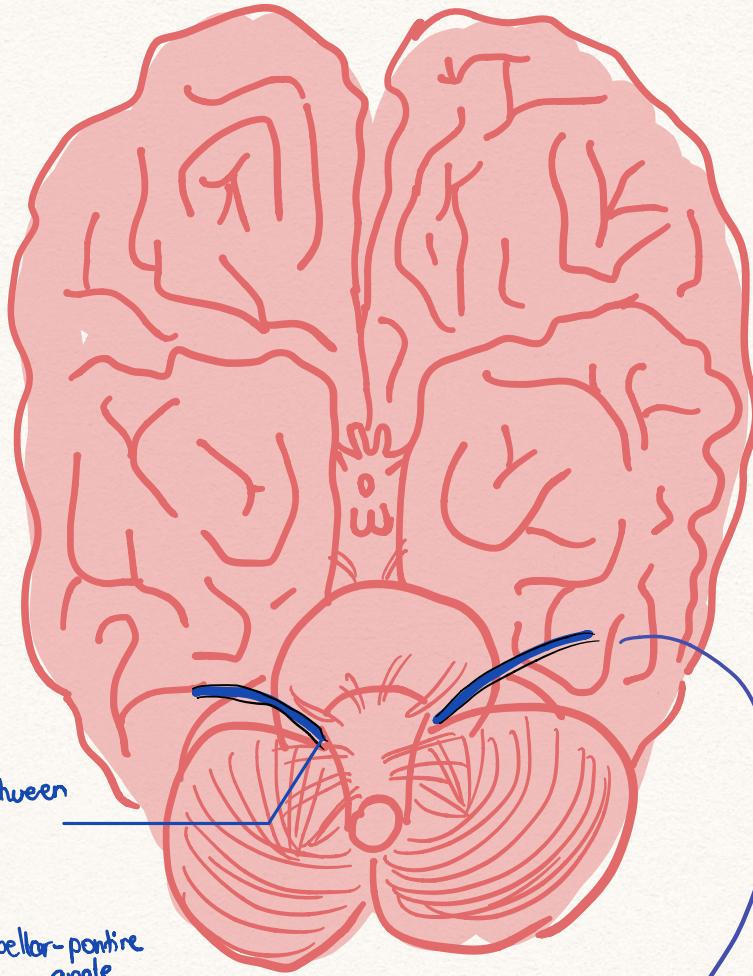
ROLE:

1st order neuron:

Vestibulocochlear nerve
inner ear hair cells

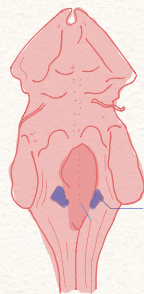


Vestibular-cochlear nuclei
in the lateral floor of fourth
ventricle



in the corner between
- medulla
- pons
- cerebellum
CPA: cerebellar-pontine
angle

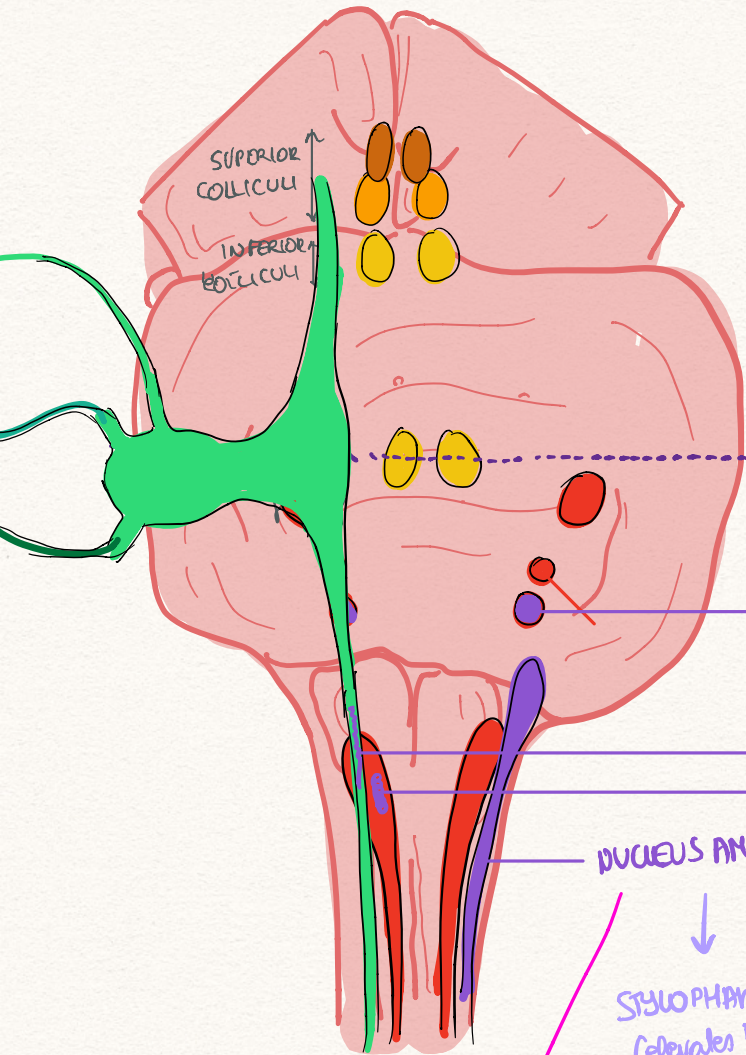
the fibres of the
CVIII
terminate in
the VCN in the
posterior brainstem



VESTIBULO COCHLEAR
NUCLEI

motor
parasympathetic
sensory

GLOSSOPHARYNGEAL IX VAGUS X



PAROTID GLAND
*main saliv

INFERIOR SALIVATORY NUCLEUS
PARASYMPATHETICS

SPINAL NUCLEUS OF TRIGEMINAL NERVE

Pain, T, sensation of inner ear, pharynx, posterior 1/3 of tongue

general sensation
Cx

UPPER NUCLEUS SOLITARIUS

taste of posterior 1/3 of tongue
blood pressure, O₂, CO₂

DORSAL NUCLEUS OF VAGUS

= parasympathetic of visceral organs

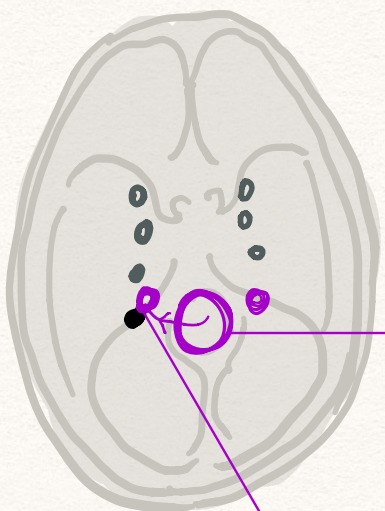
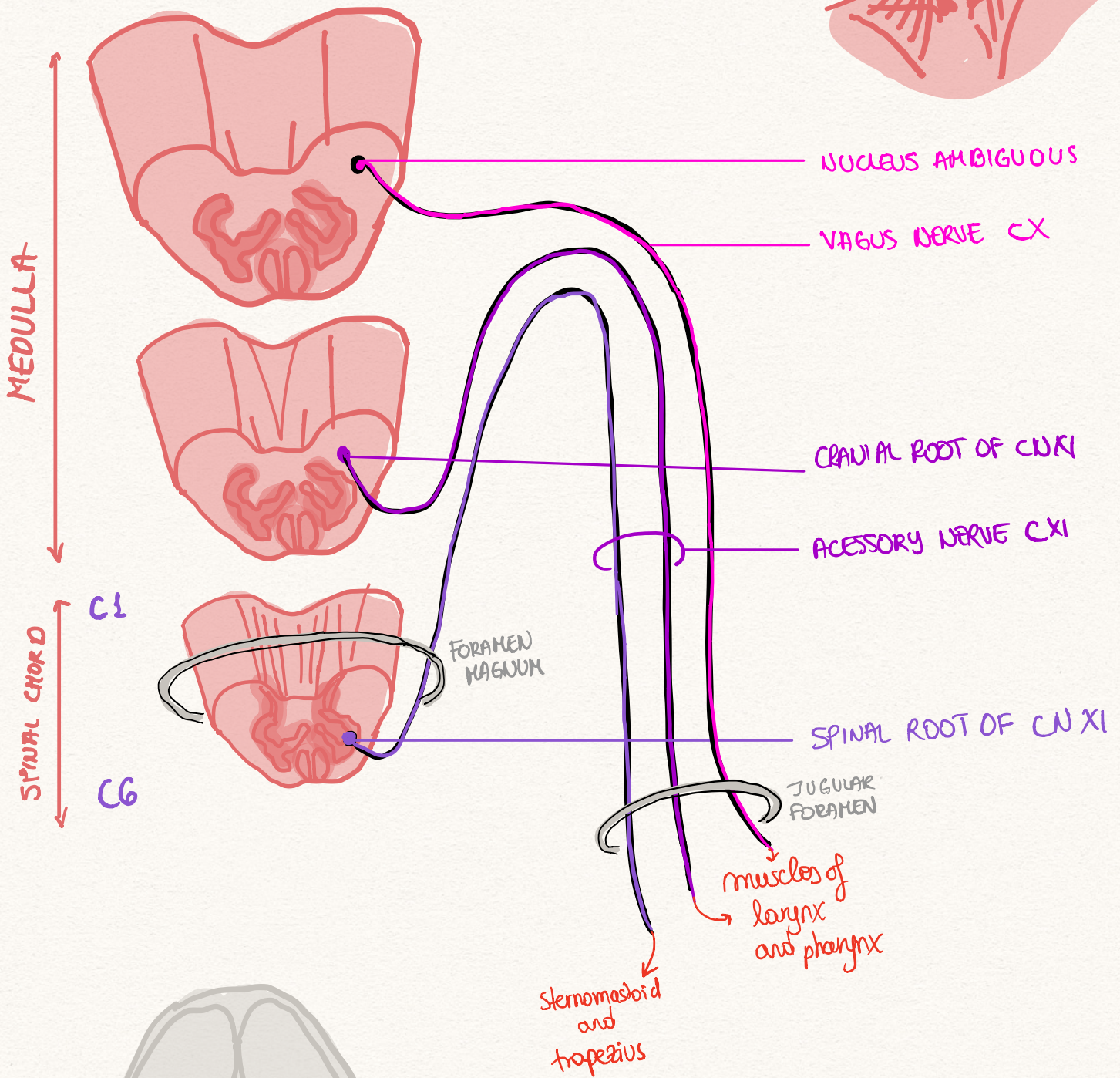
NUCLEUS AMBIGUUS

STYLOPHARYNGEUS M.
(elevates larynx and pharynx, *swallowing)

muscles of larynx, pharynx, upper esophagus
parasympathetic to heart, Cx

motor

ACCESSORY NERVE CXI



FROM FORAMEN MAGNUM

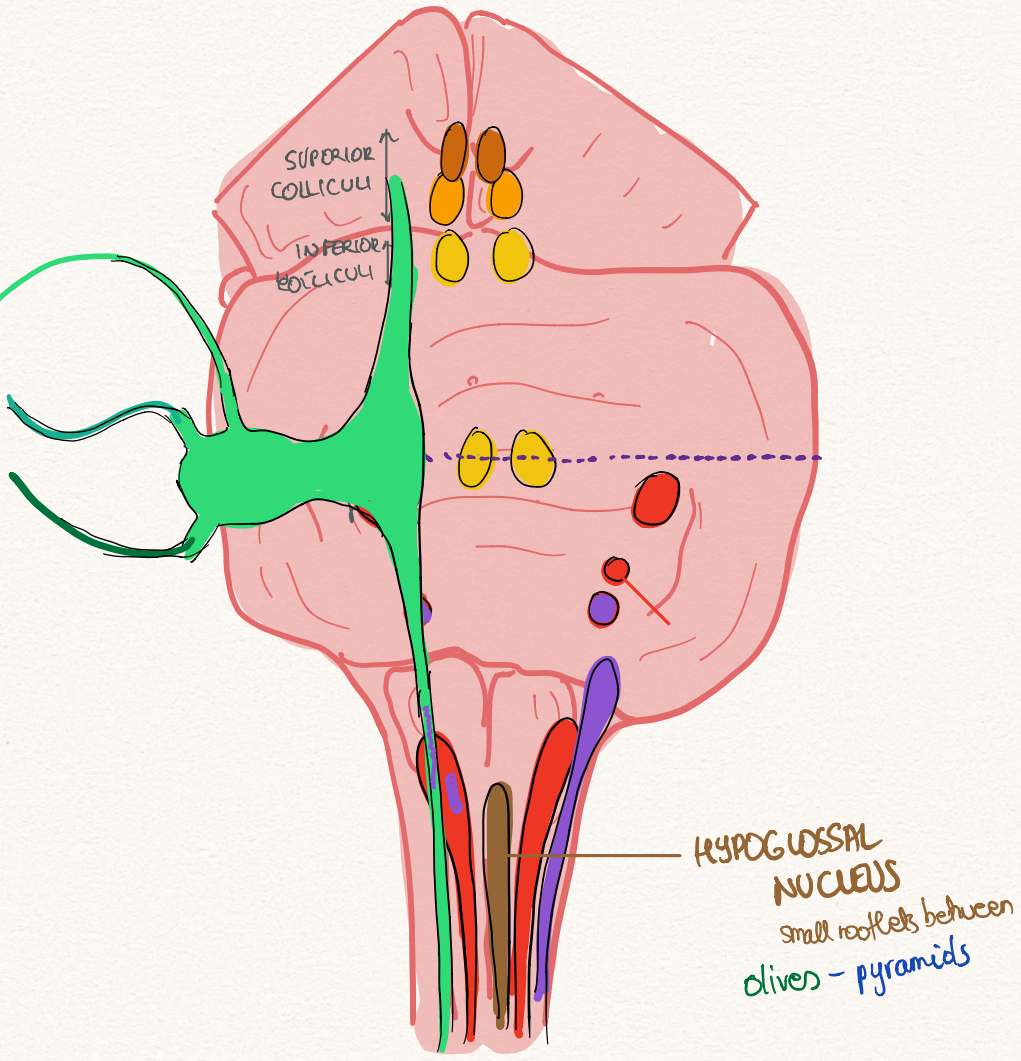


TO JUGULAR FORAMEN

CX
CXI
CIX

motor

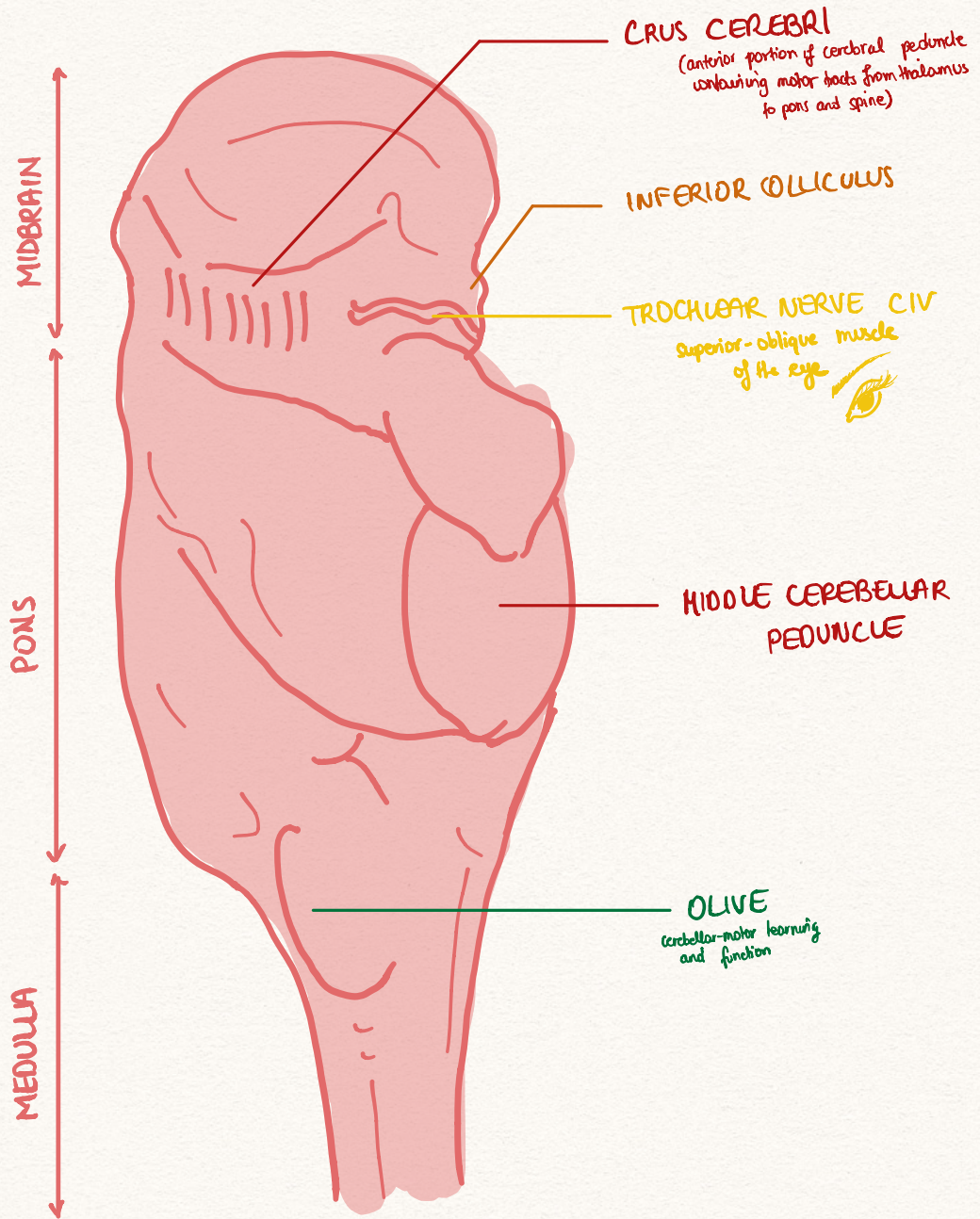
HYPOGLOSSAL NERVE CXII



HYPOGLOSSAL NUCLEUS
small rootlets between
olives - pyramids

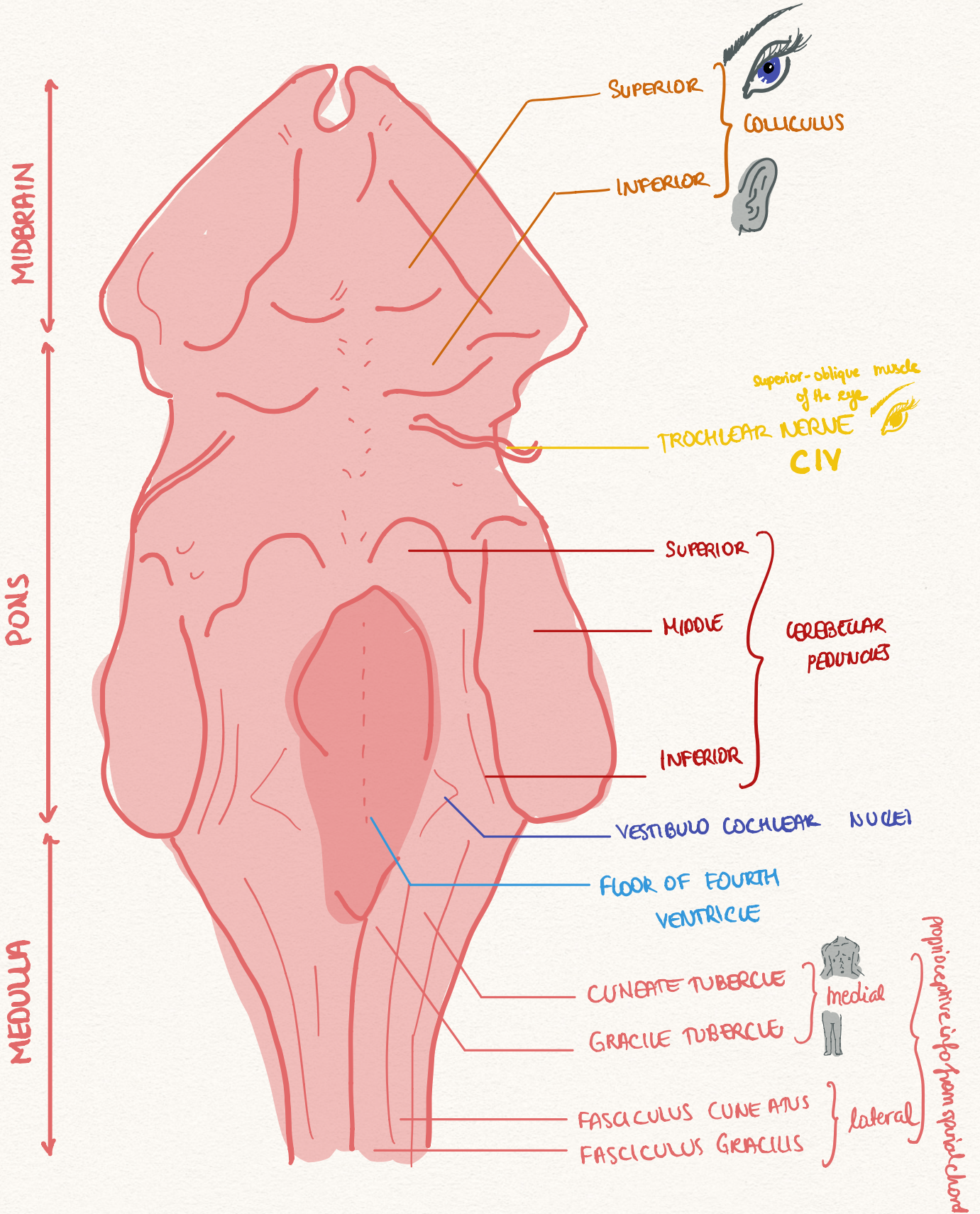
BRAINSTEM - LATERAL

10/12 CRANIAL NERVES ATTATCH HERE



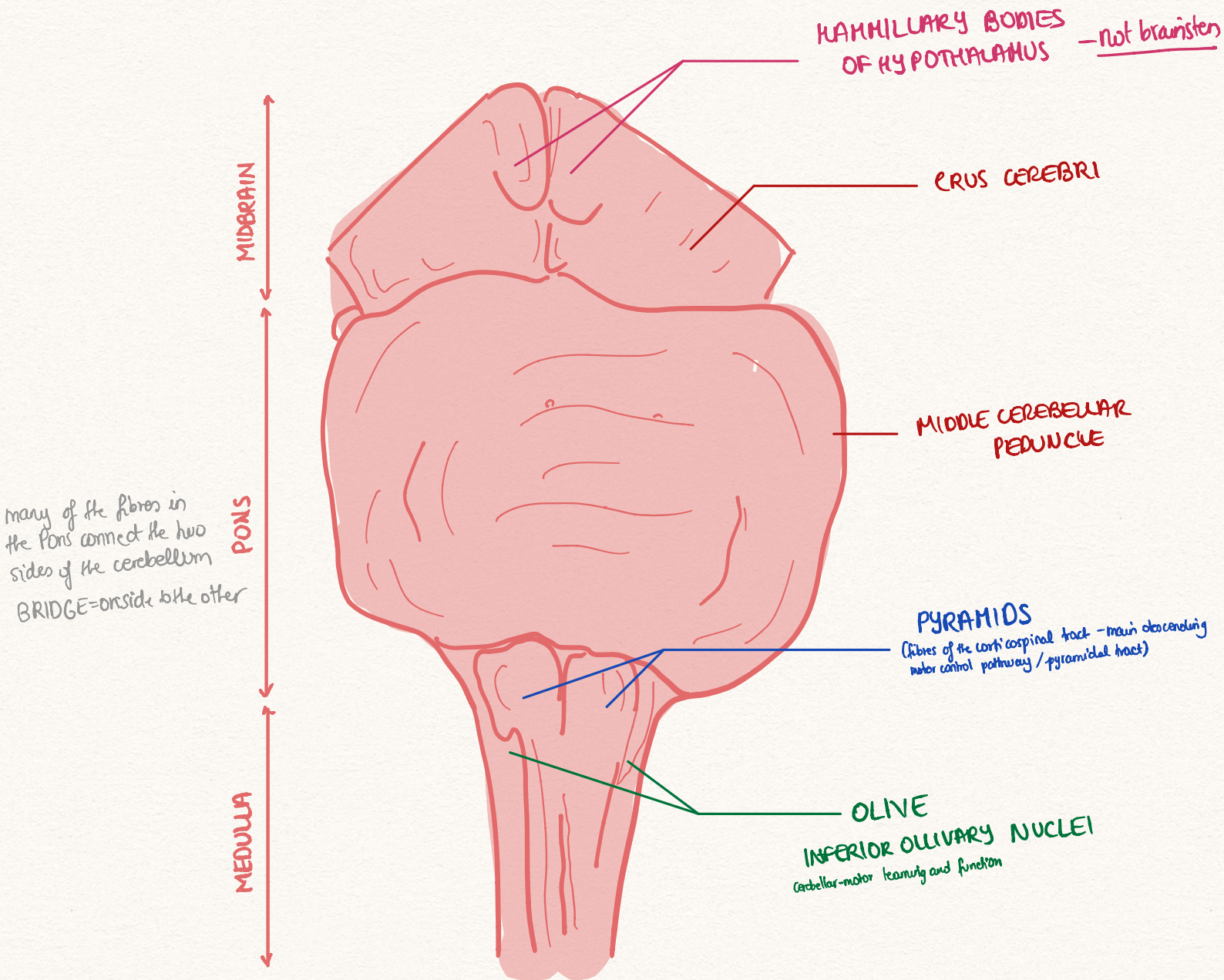
BRAINSTEM- POSTERIOR

10/12 CRANIAL NERVES ATTATCH HERE



BRAINSTEM - VENTRAL

10/12 CRANIAL NERVES ATTACH HERE



HYPHALLARY BODIES OF HYPOPHALAHUS - not brainstem

CERUS CEREBRI

MIDDLE CEREBELLAR PEDUNCLE

PYRAMIDS
(fibres of the corticospinal tract - main descending motor control pathway / pyramidal tract)

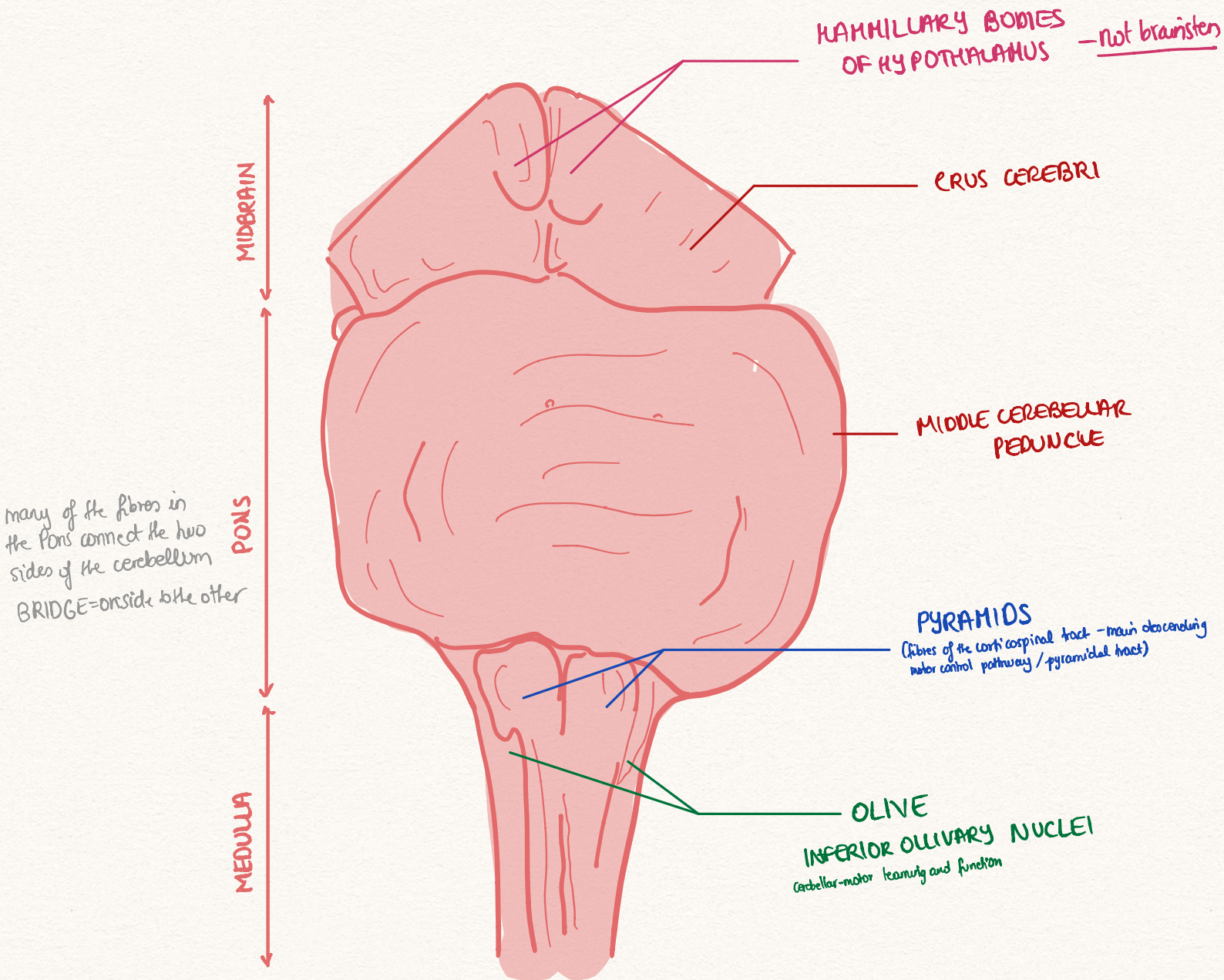
OLIVE
INFERIOR OLLIVARY NUCLEI
Cerebellar-motor learning and function

many of the fibres in the PONS connect the two sides of the cerebellum
BRIDGE=on side to the other

MIDBRAIN
PONS
MEDULLA

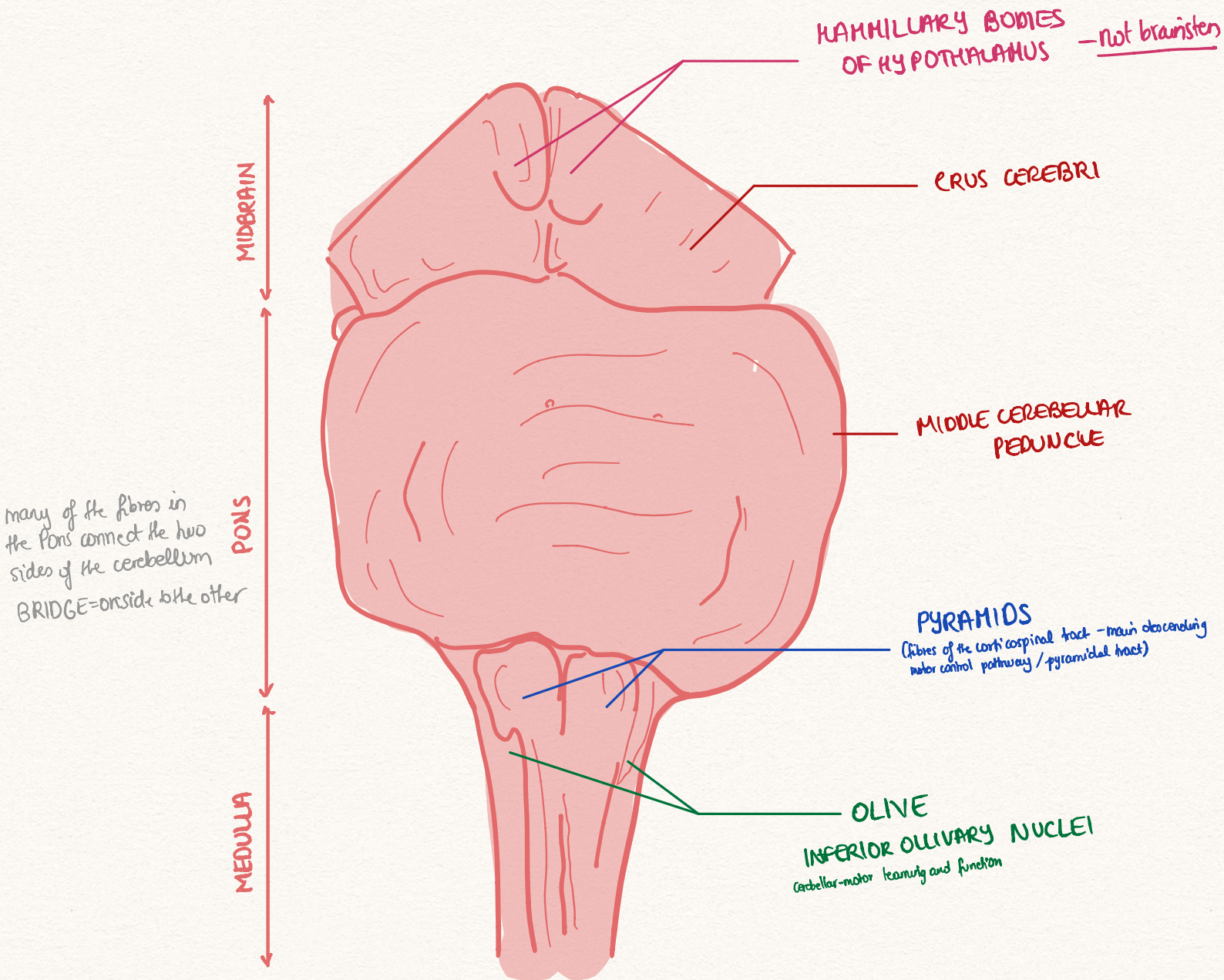
BRAINSTEM - VENTRAL

10/12 CRANIAL NERVES ATTACH HERE



BRAINSTEM - VENTRAL

10/12 CRANIAL NERVES ATTACH HERE



HYPHILARY BODIES OF HYPOPHALAHUS - not brainstem

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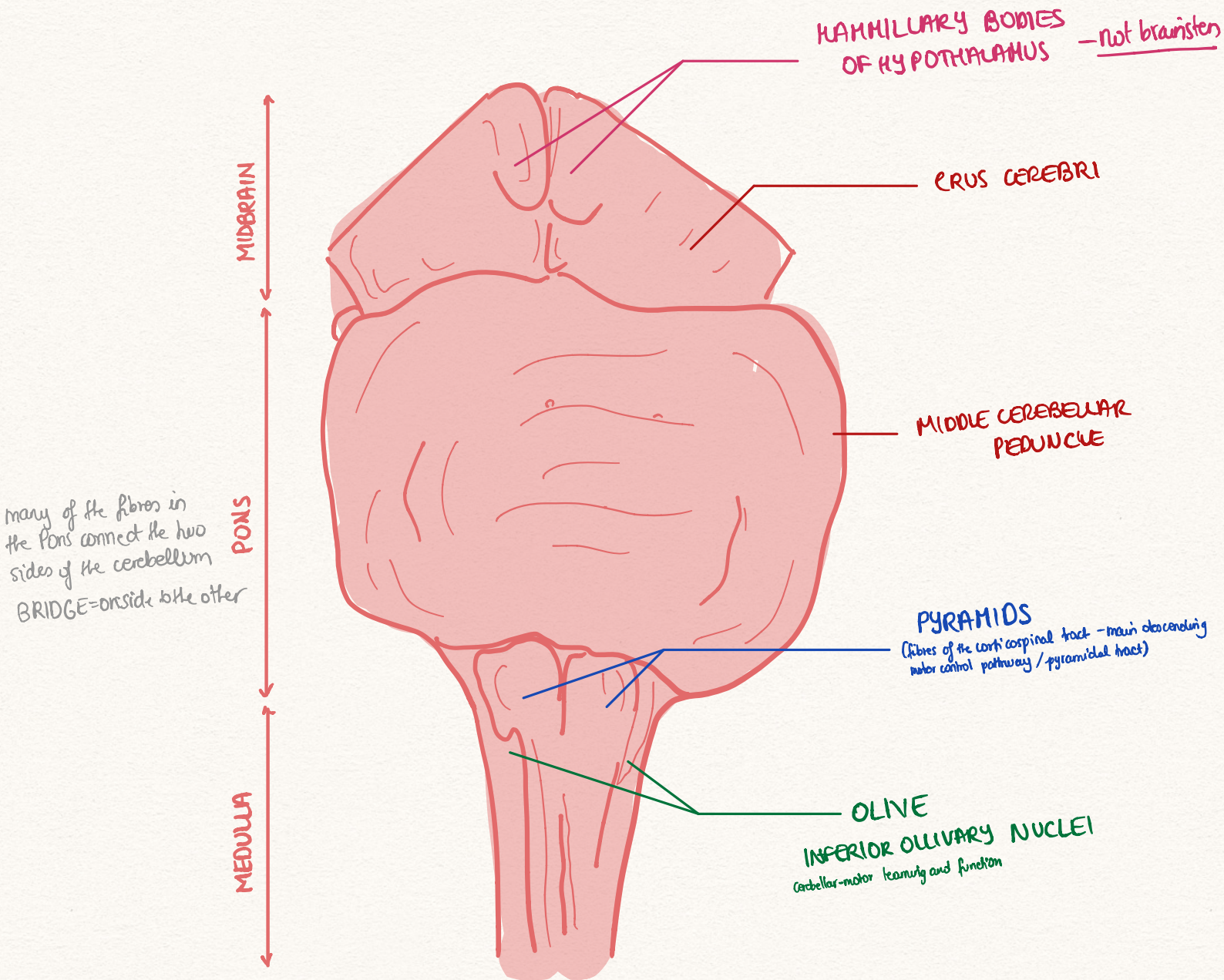
OLIVE
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MIDBRAIN
PONS
MEDULLA

BRAINSTEM - VENTRAL

10/12 CRANIAL NERVES ATTACH HERE



HYPHILARY BODIES OF HYPOPHALAHUS - not brainstem

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MIDDLE CEREBELLAR PEDUNCLE

PYRAMIDS
(fibres of the corticospinal tract - main descending motor control pathway / pyramidal tract)

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INFERIOR OLLIVARY NUCLEI
Cerebellar-motor learning and function

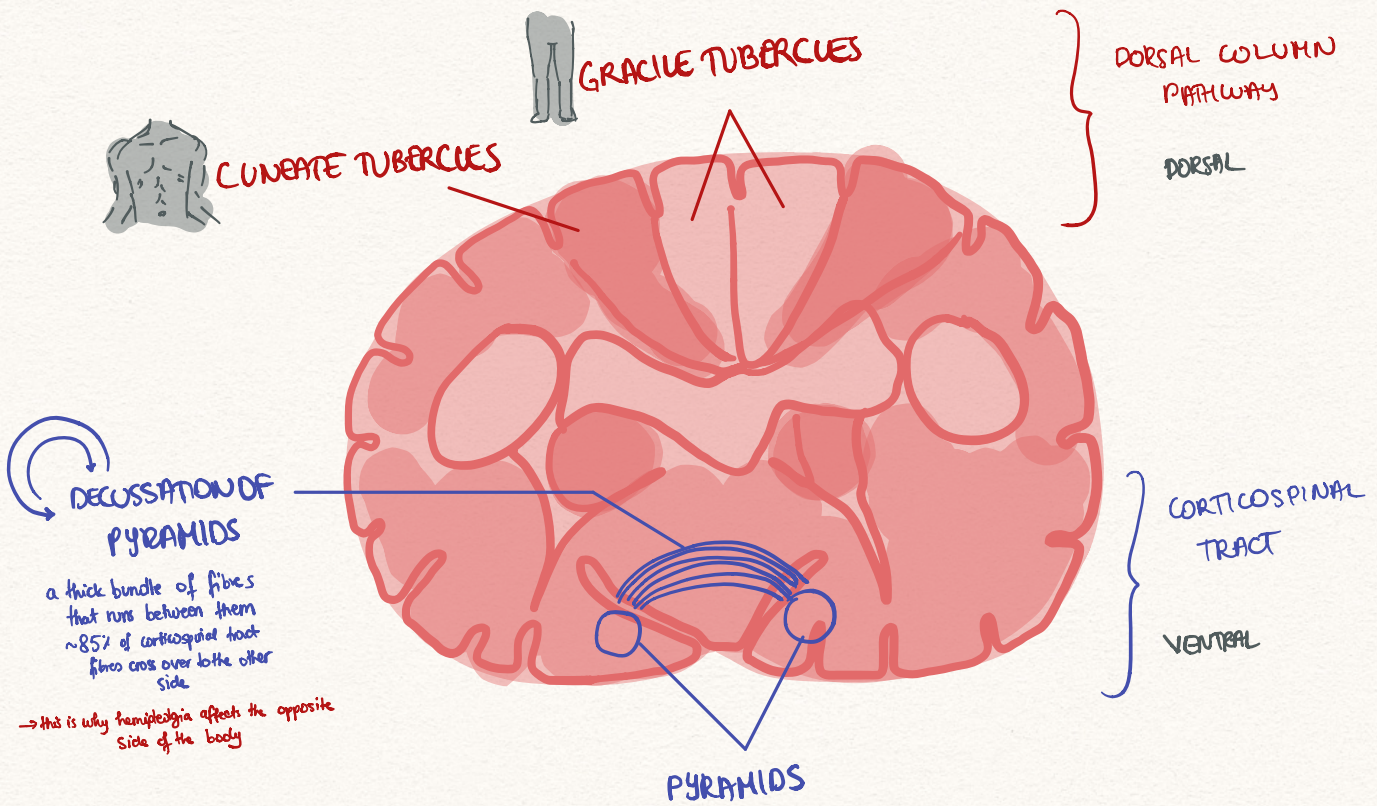
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BRIDGE=on side to the other

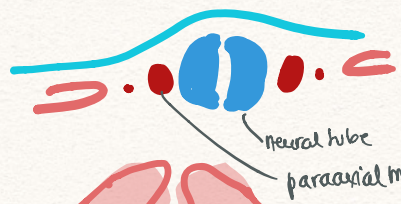
MIDBRAIN

PONS

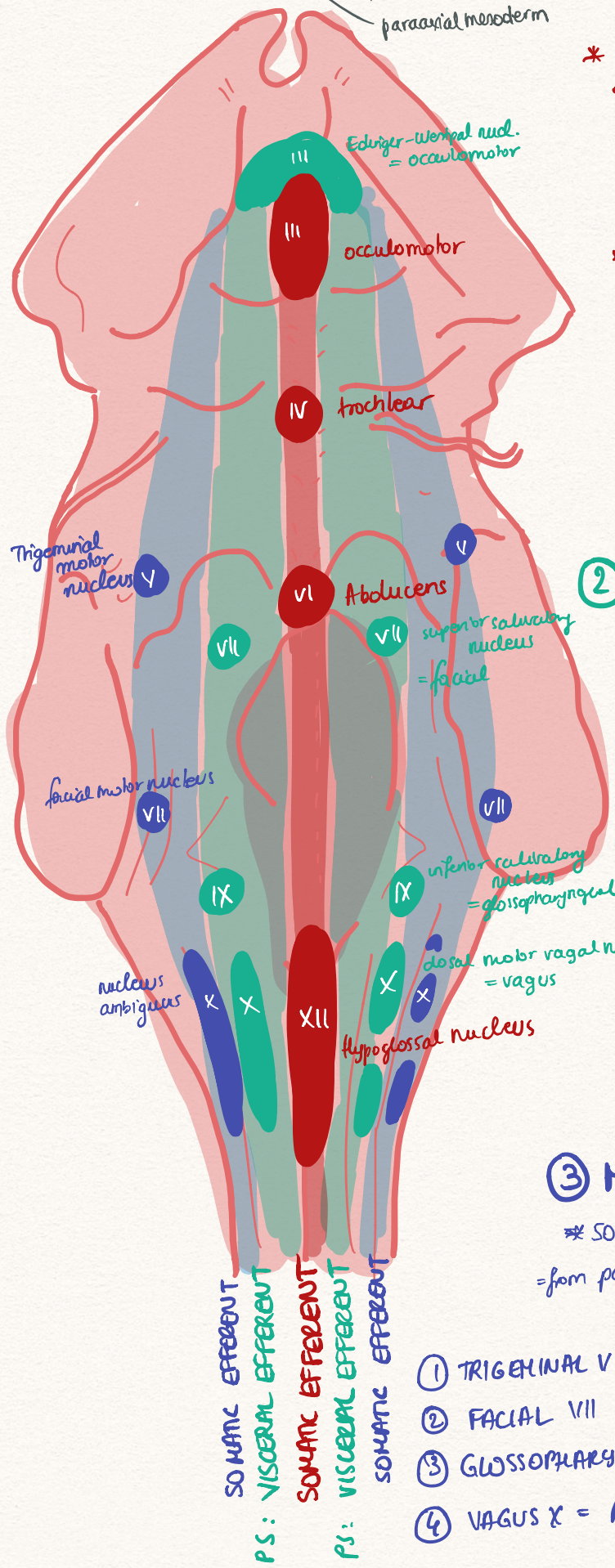
MEDULLA

TRANSVERSE SECTION OF MEDULLA





MIDBRAIN
PONS
MEDULLA



① MEDIAL

= adjacent to midline of brainstem
* X motor neurons that innervate SKELETAL MUSCLE from paraxial mesoderm → occipital region (tongue) → area of orbit (extraocular muscles)

* SOMATIC EFFERENT

- ① HYPOGLOSSAL XII
- ② ABDUCENS VI
- ③ TROCHLEAR IV
- ④ OCULOMOTOR III

② LATERAL

= parasympathetic
* preganglionic neurons terminating in a peripheral ganglion
* innervate VISCERAL STRUCTURES

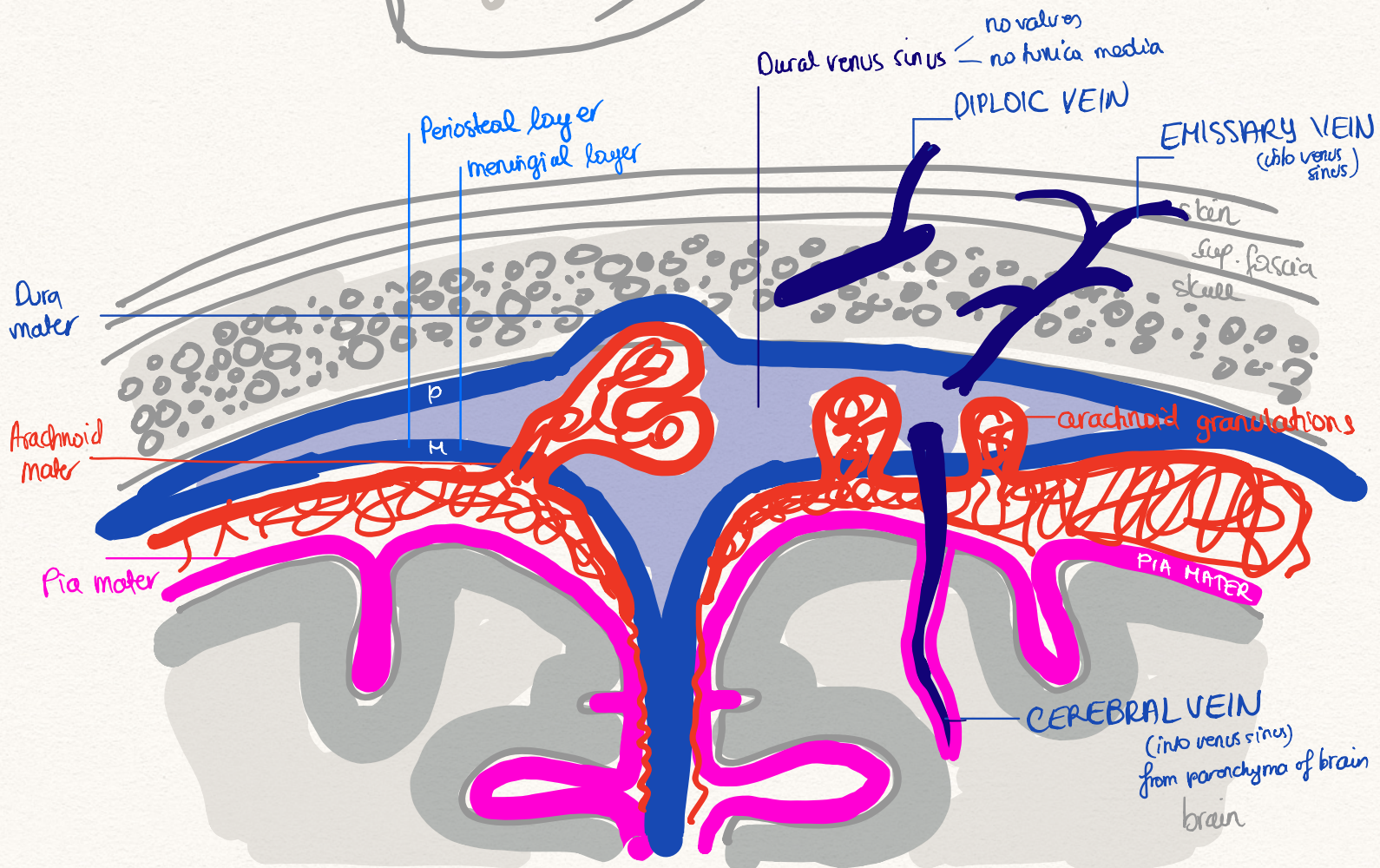
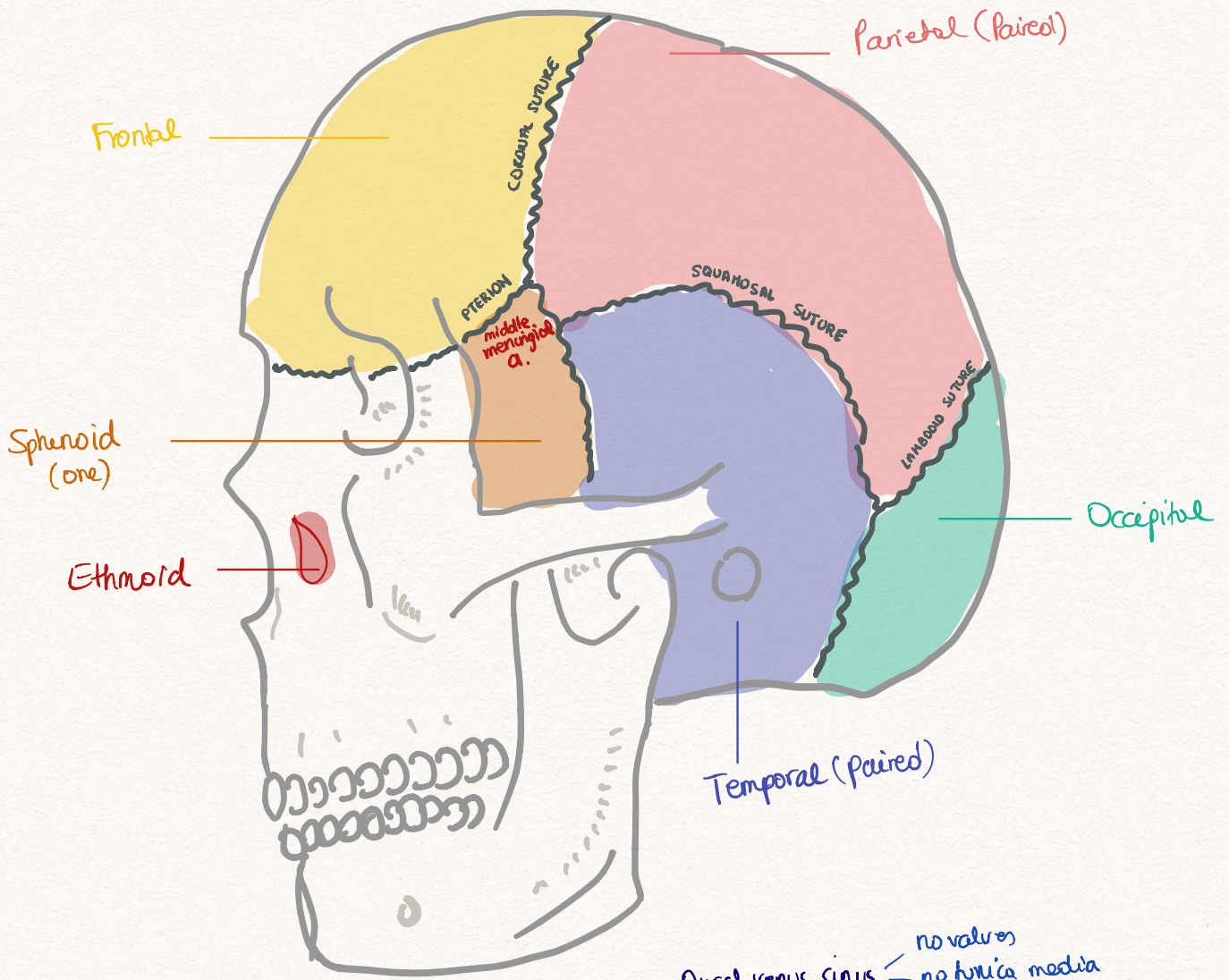
* VISCERAL EFFERENT

- ① VAGUS X = dorsal motor vagal nuc.
- ② GLOSSOPHARYNGEAL IX = inferior salivatory nucleus - parotid gland, salivation
- ③ FACIAL VII = superior salivatory nuc. - submandibular, sublingual
- ④ OCULOMOTOR III = Edinger-Westphal pg nucleus

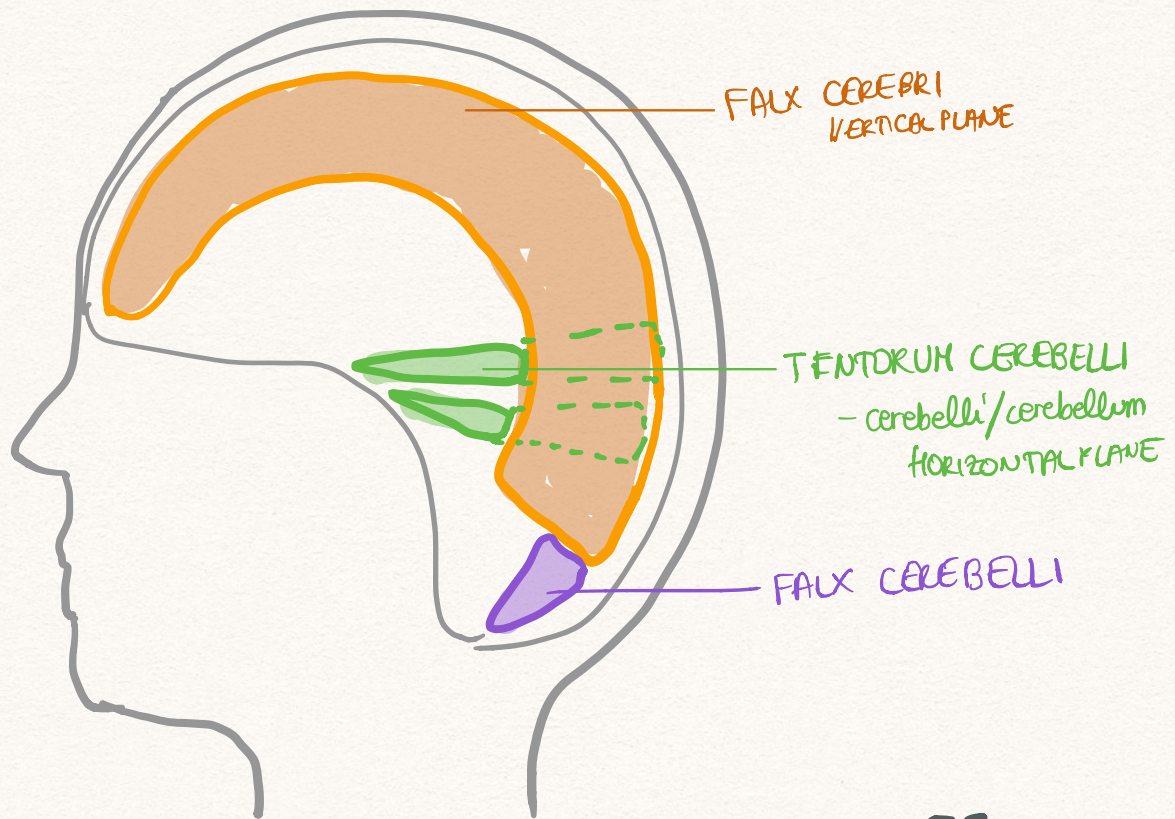
③ MOST LATERAL

* SOMATIC EFFERENT
= from paraxial mesoderm → pharyngeal arches

- ① TRIGEMINAL V = mastication = arch I
- ② FACIAL VII = facial expression = arch II
- ③ GLOSSOPHARYNGEAL IX = stylopharyngeus = arch III
- ④ VAGUS X = pharynx constrictors, intrinsic larynx, palate, vocalist = arch IV

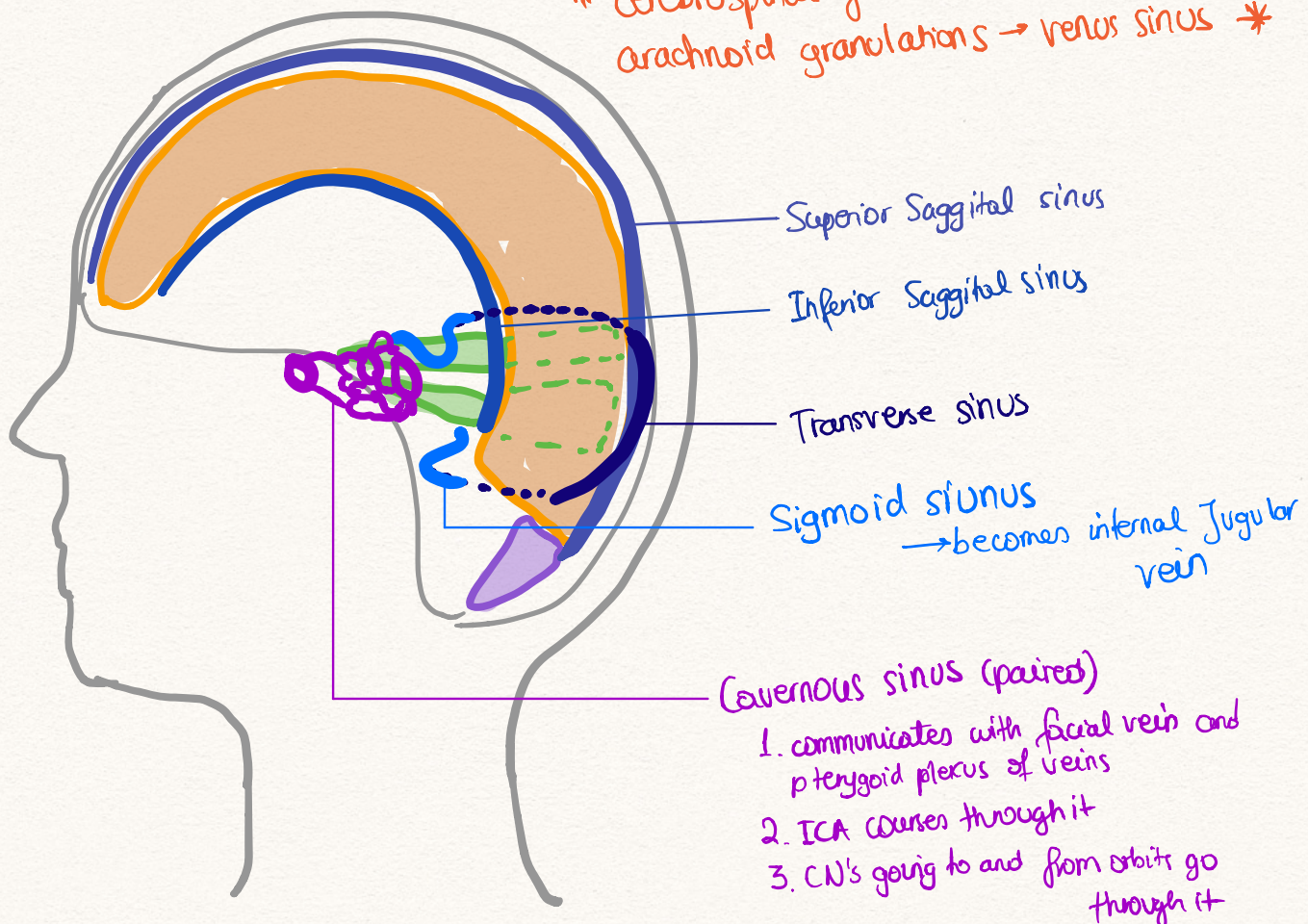


CRANIAL MENINGES (DURA MATER)

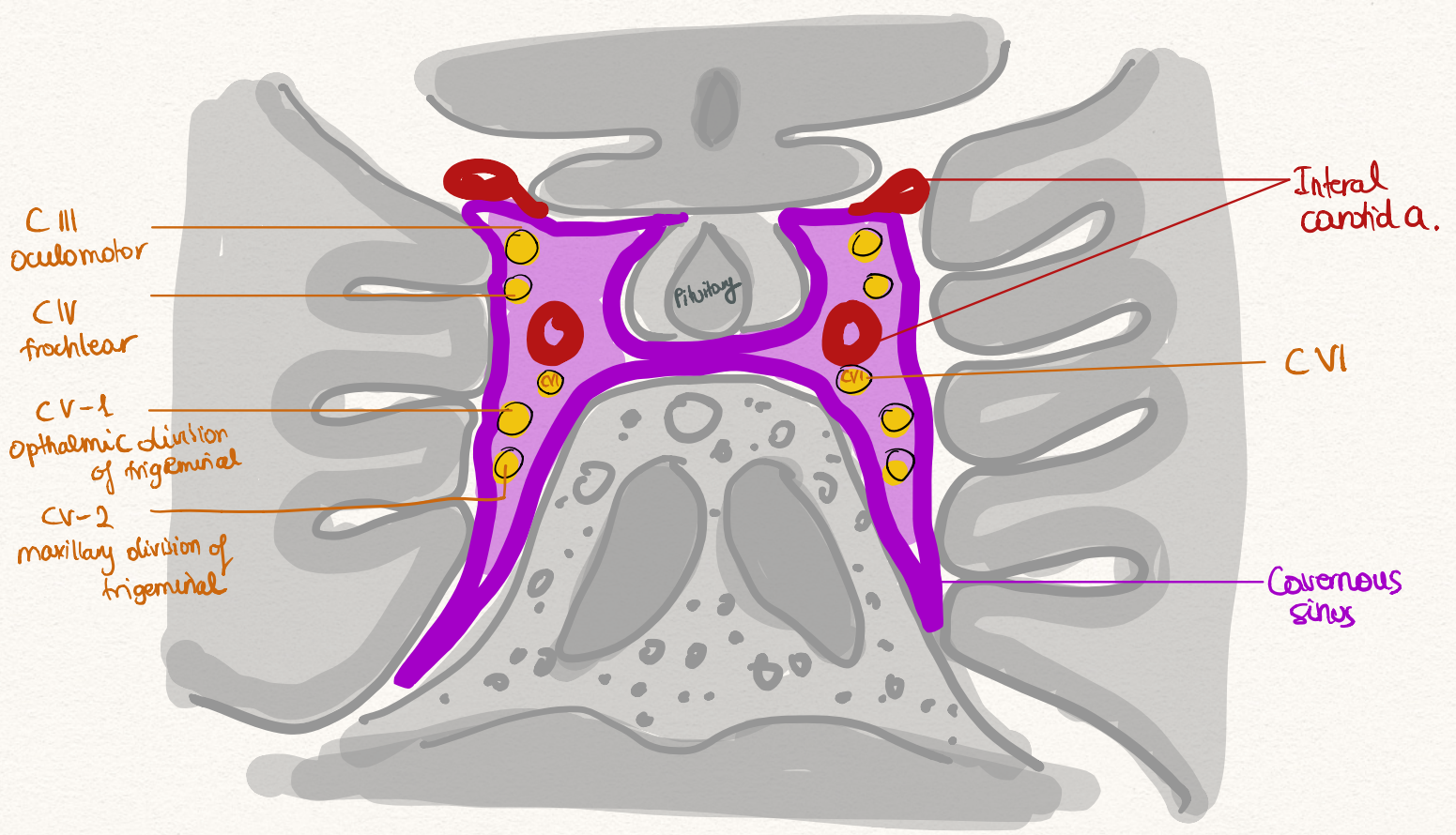
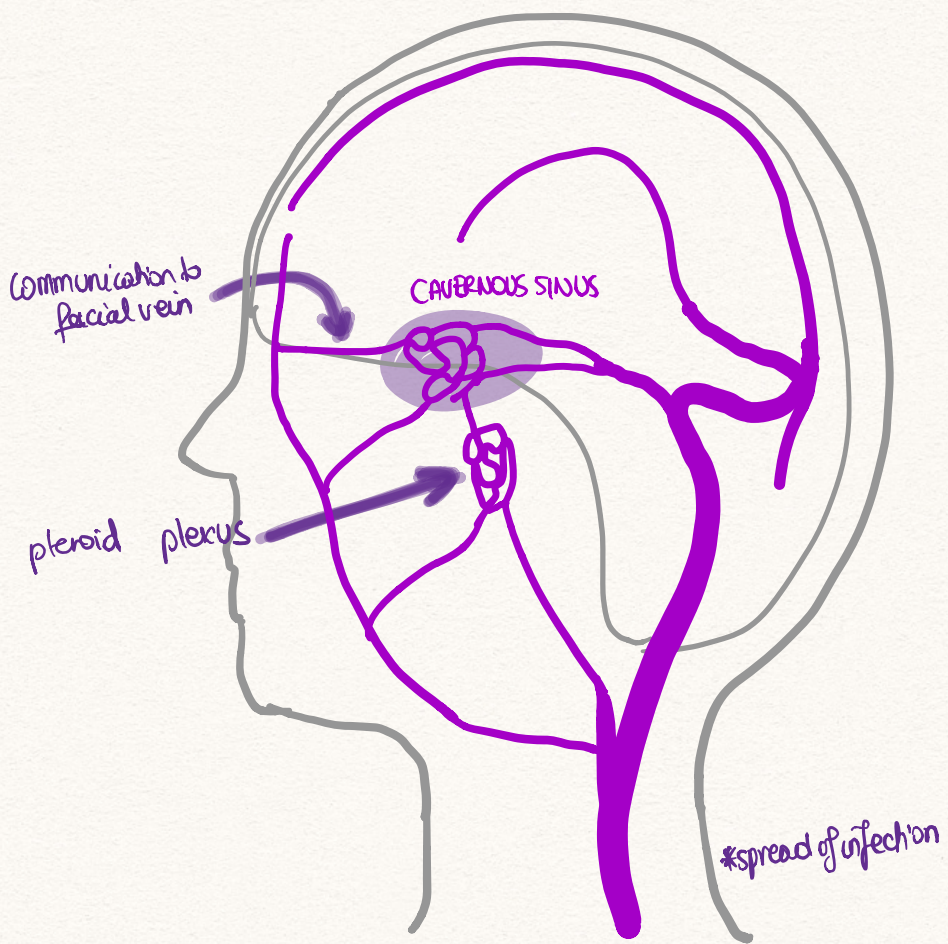


DURAL VENOUS SINUSES

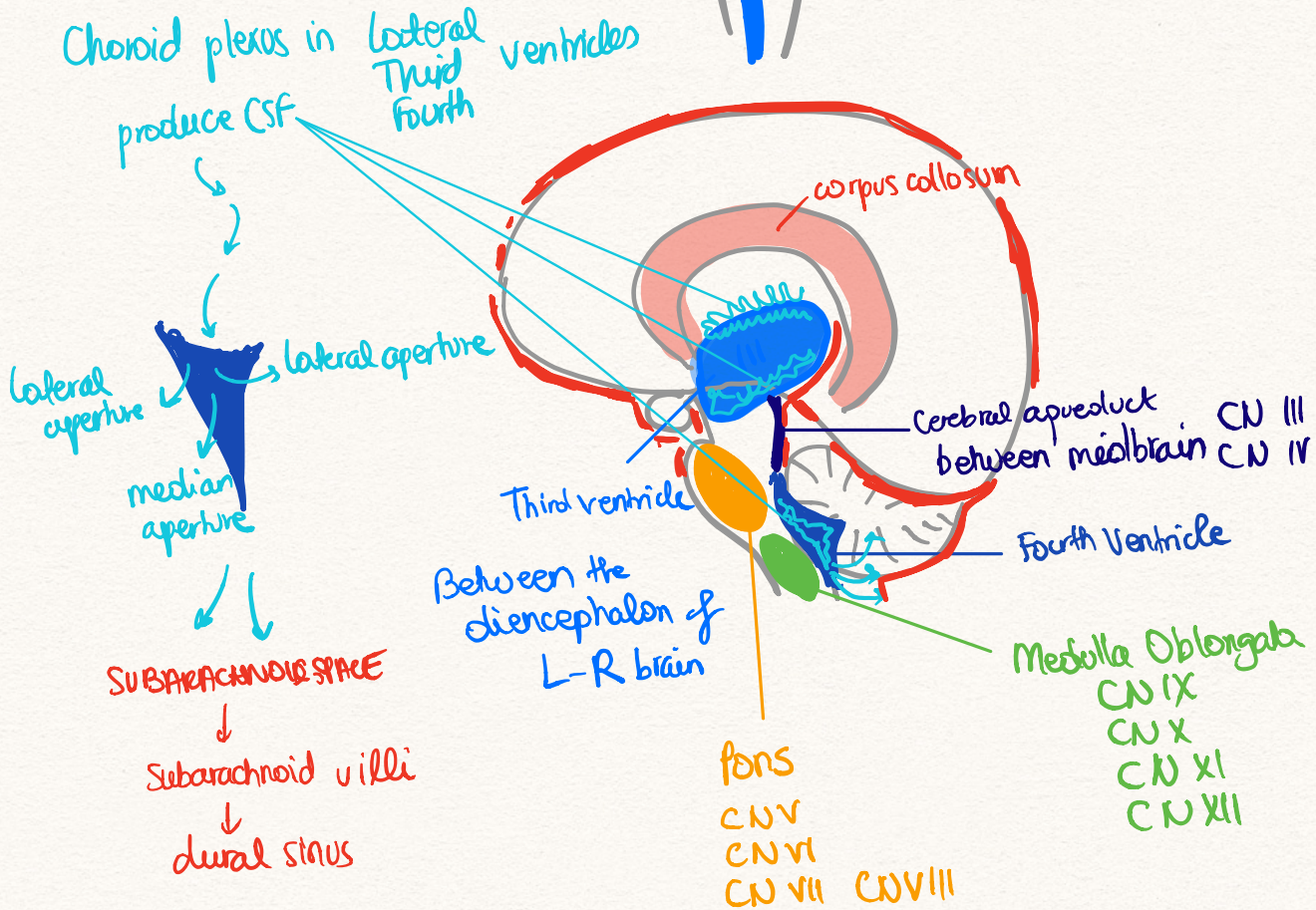
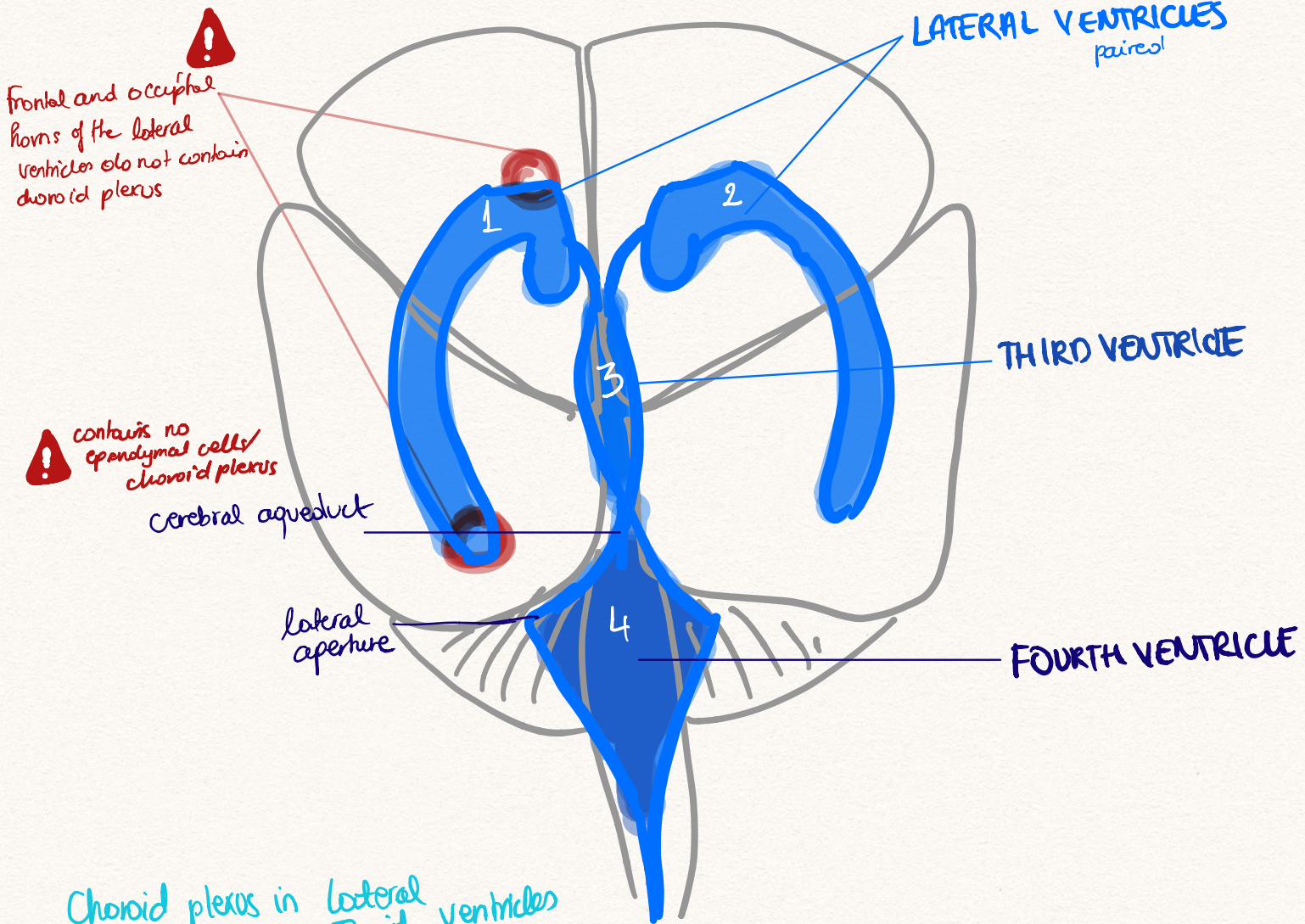
* cerebrospinal fluid → arachnoid space → arachnoid granulations → venous sinus *




CAVERNOUS SINUS



VENTRICLES



FLOW OF CSF

① choroid plexus of lateral
Third
Fourth } Ventricles 

② to fourth ventricle 

③ out 2 lateral
& medial } apertures 

④ into subarachnoid space around brain and spinal chord

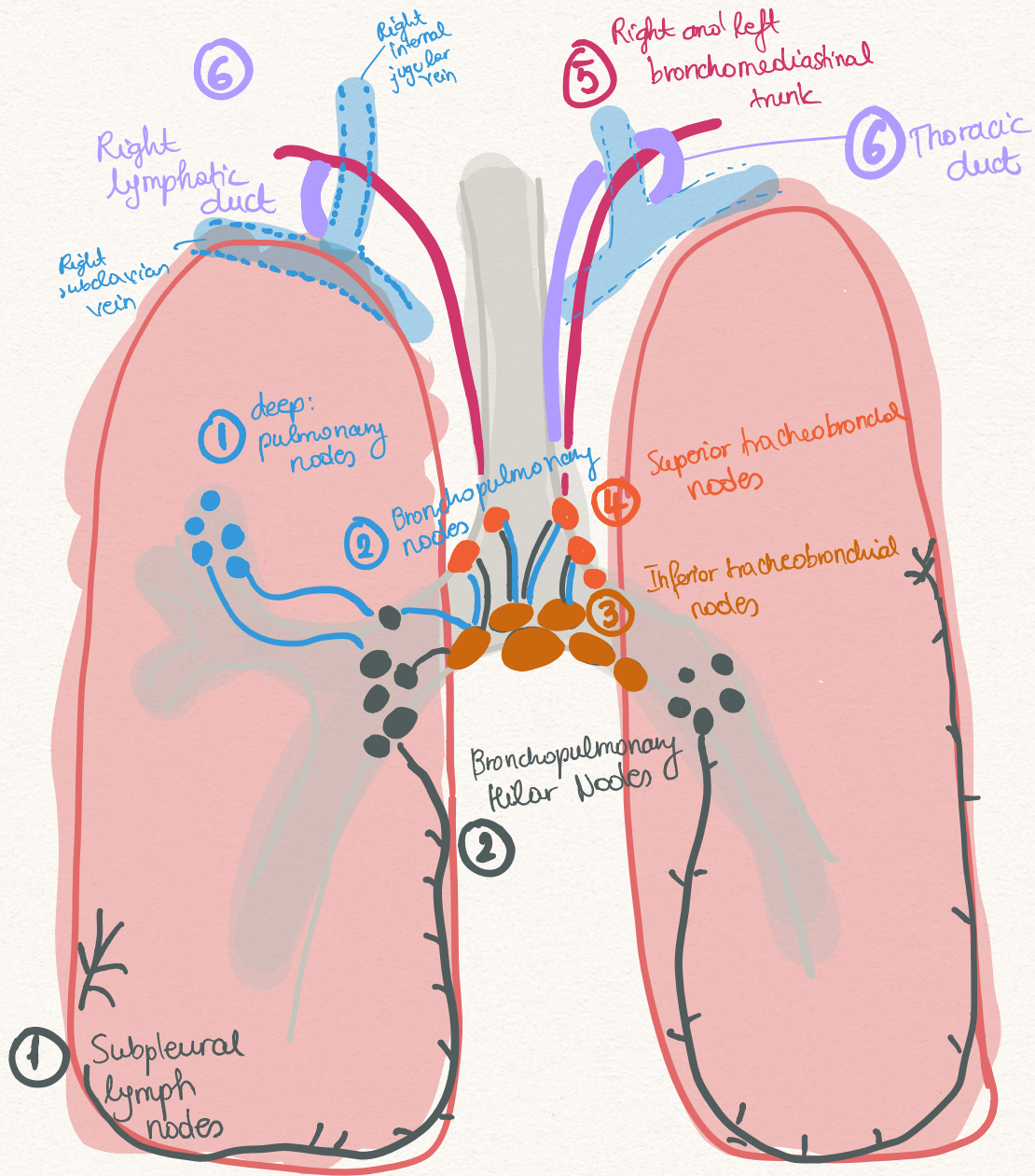
⑤ into arachnoid villi



⑥ out into venous sinus



THORACIC LYMPH DRAINAGE



Lymph drainage of the lungs

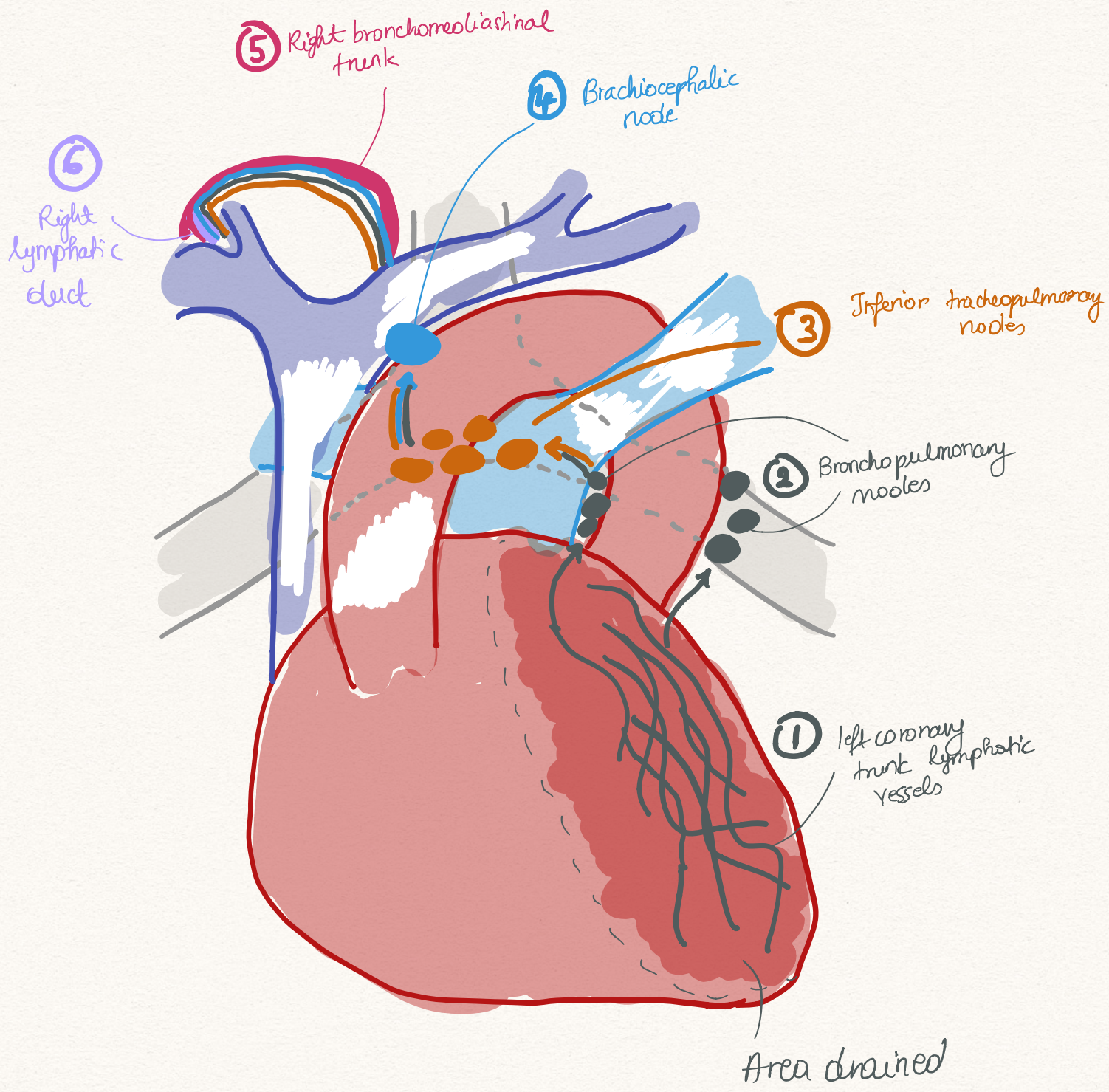
(The parietal pleura doesn't drain here → thoracic wall lymph nodes)

① Superficial

- ② bronchopulmonary
- ③ inferior tracheobronchial
- ④ superior tracheobronchial
- ⑤ bronchomediastinal trunk
- ⑥ Right lymphatic/thoracic duct

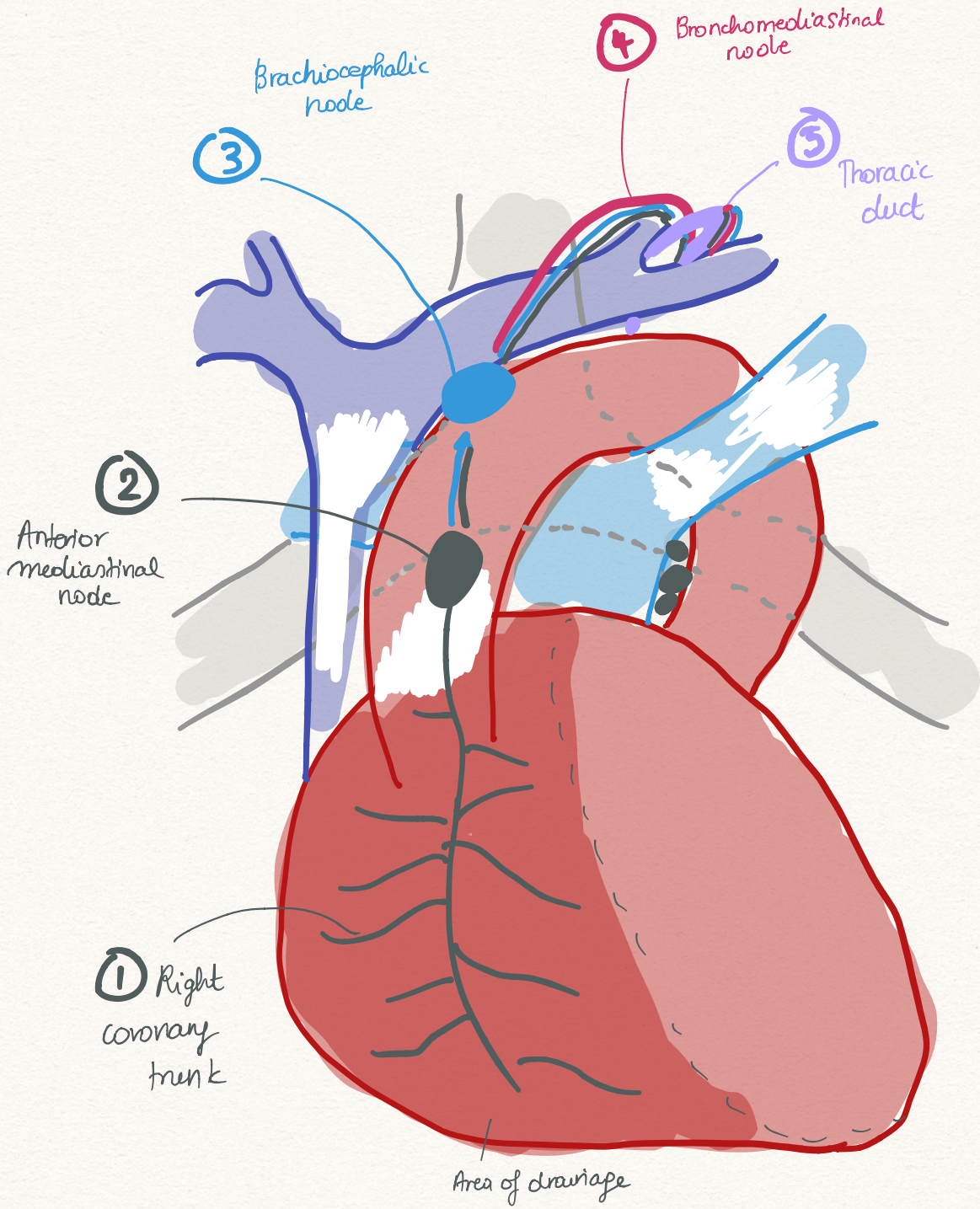
① Deep

- ② bronchopulmonary
- ③ inferior tracheobronchial
- ④ superior tracheobronchial
- ⑤ bronchomediastinal trunk
- ⑥ Right lymphatic/thoracic duct



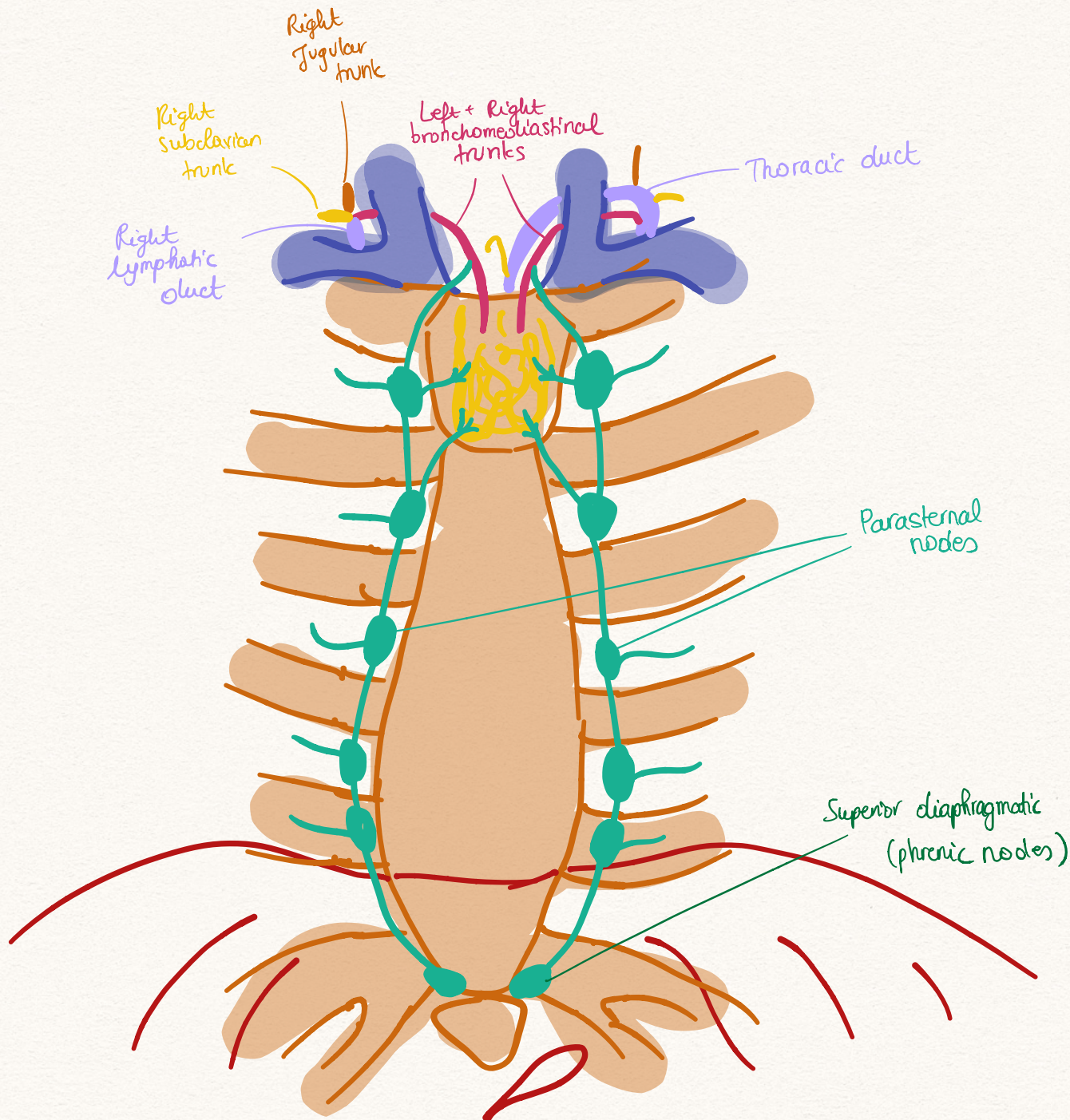
Lymphatic drainage of the LEFT coronary trunk

→ into **RIGHT** lymphatic duct

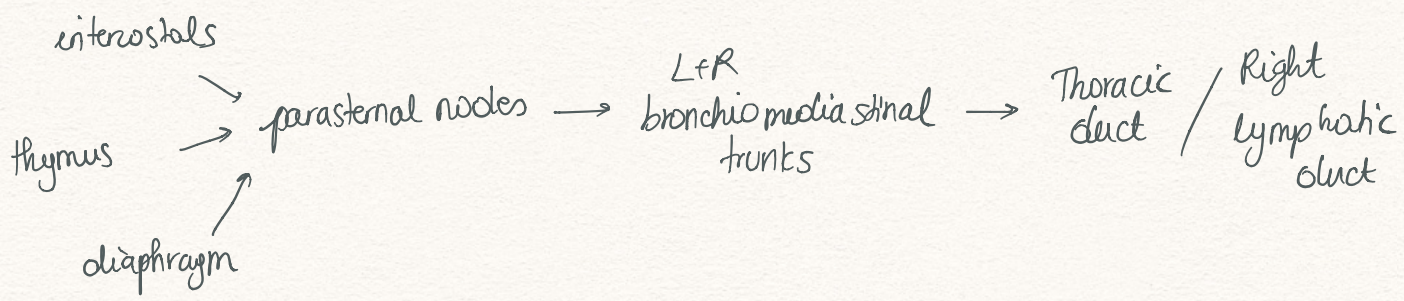


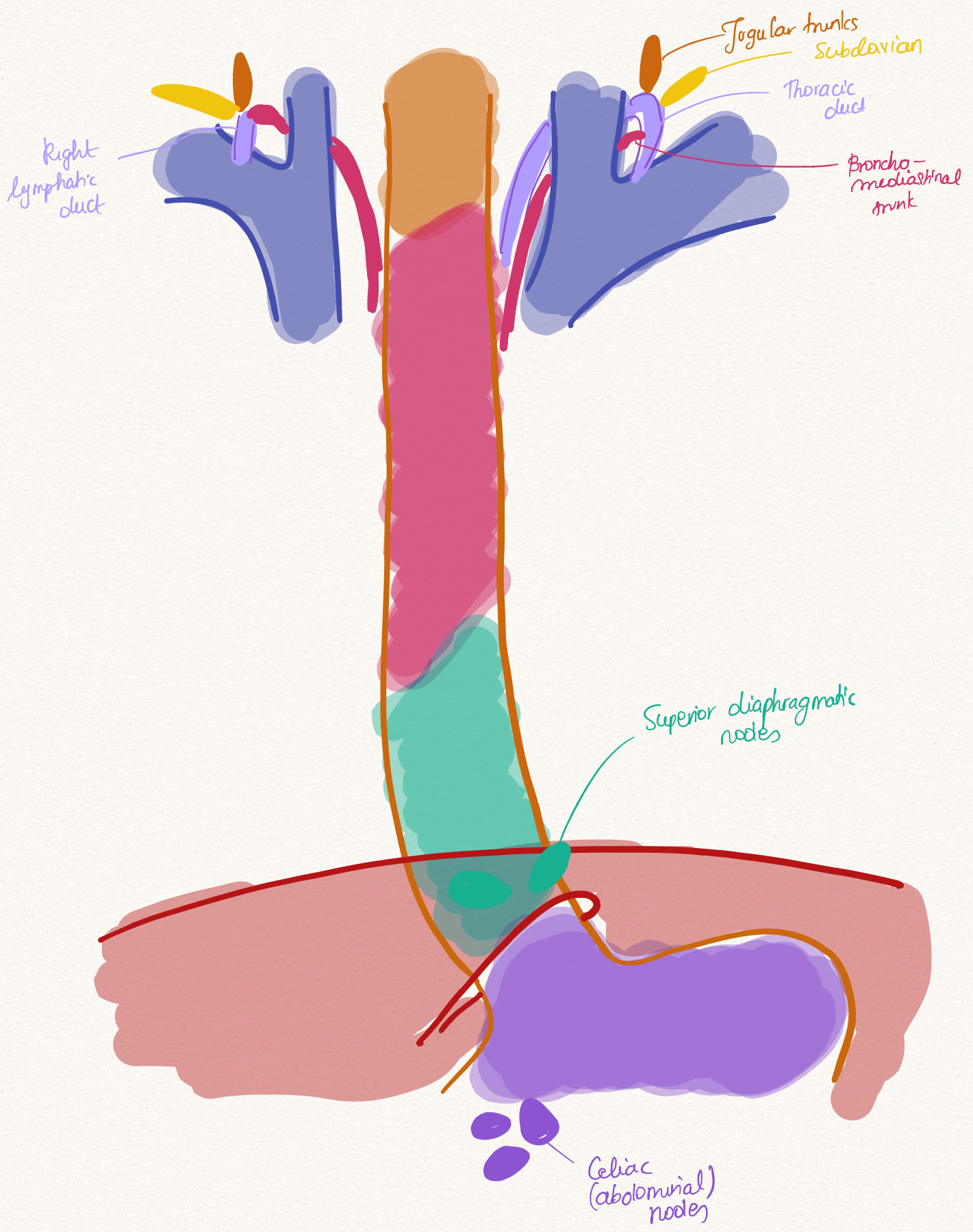
Lymphatic drainage of the Right coronary trunk

→ into the **THORACIC DUCT**

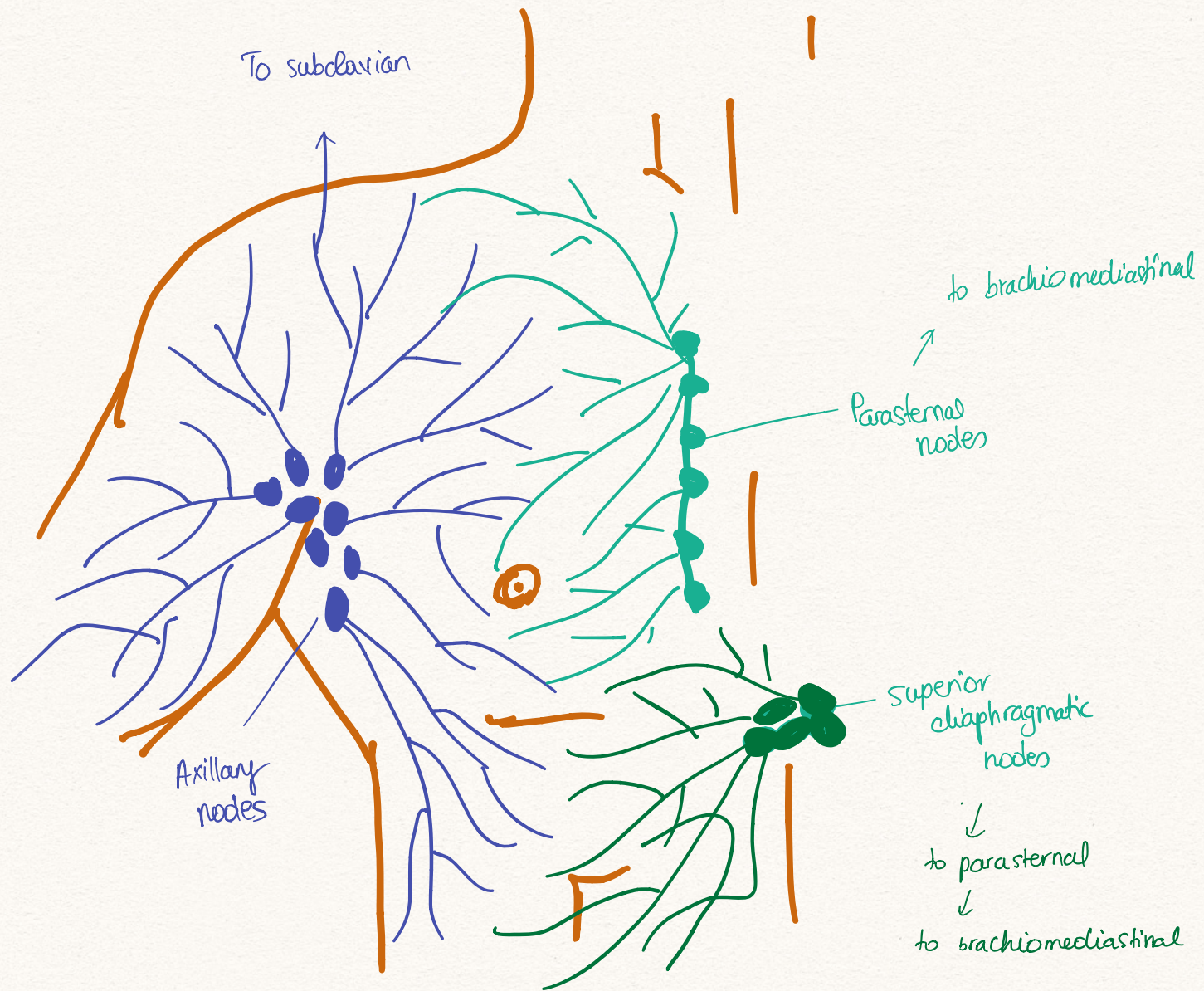


Lymph drainage of parasternal nodes

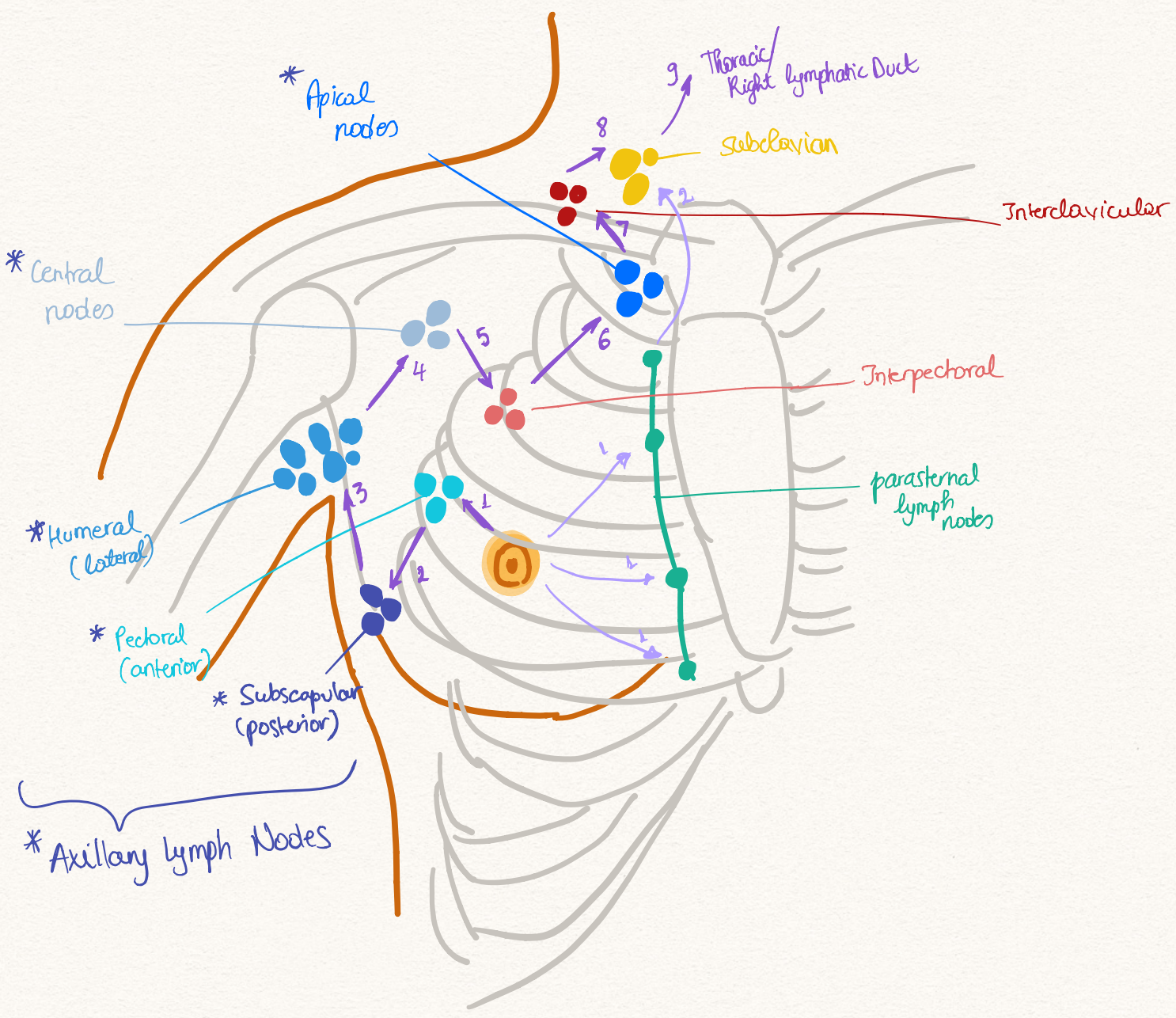




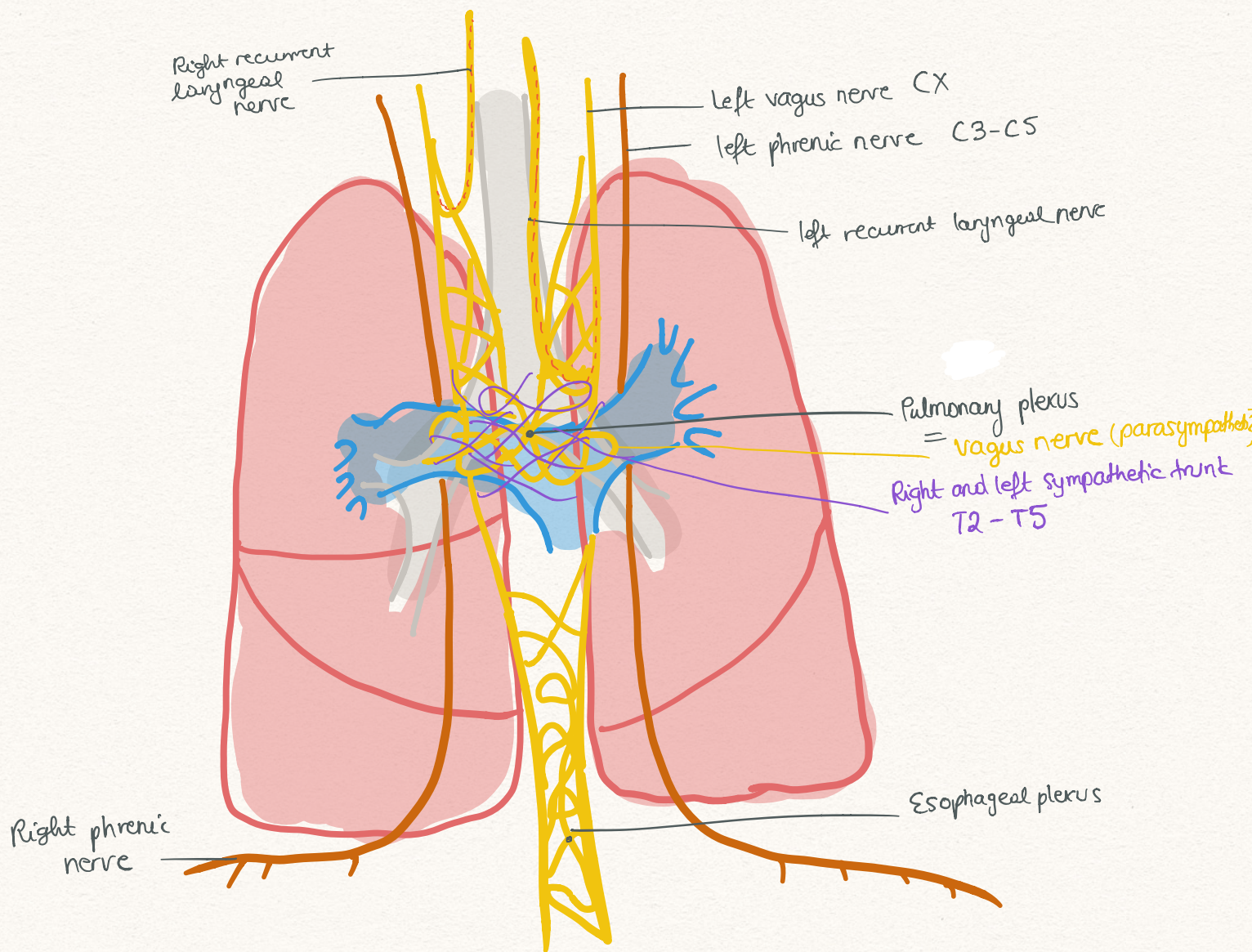
Lymphatic drainage of oesophagus



Superficial Lymphatic drainage



LYMPHATIC DRAINAGE OF BREAST



INNERVATION OF LUNGS

- visceral pleura = insensitive to pain, the only autonomic nerves that it has are those of accompanying blood vessels/bronchial vessels
Has no nerves of general sensation
- parietal pleura = RICHLY supplied by somatic intercostals and phrenic nerves
→ both local and referred pain

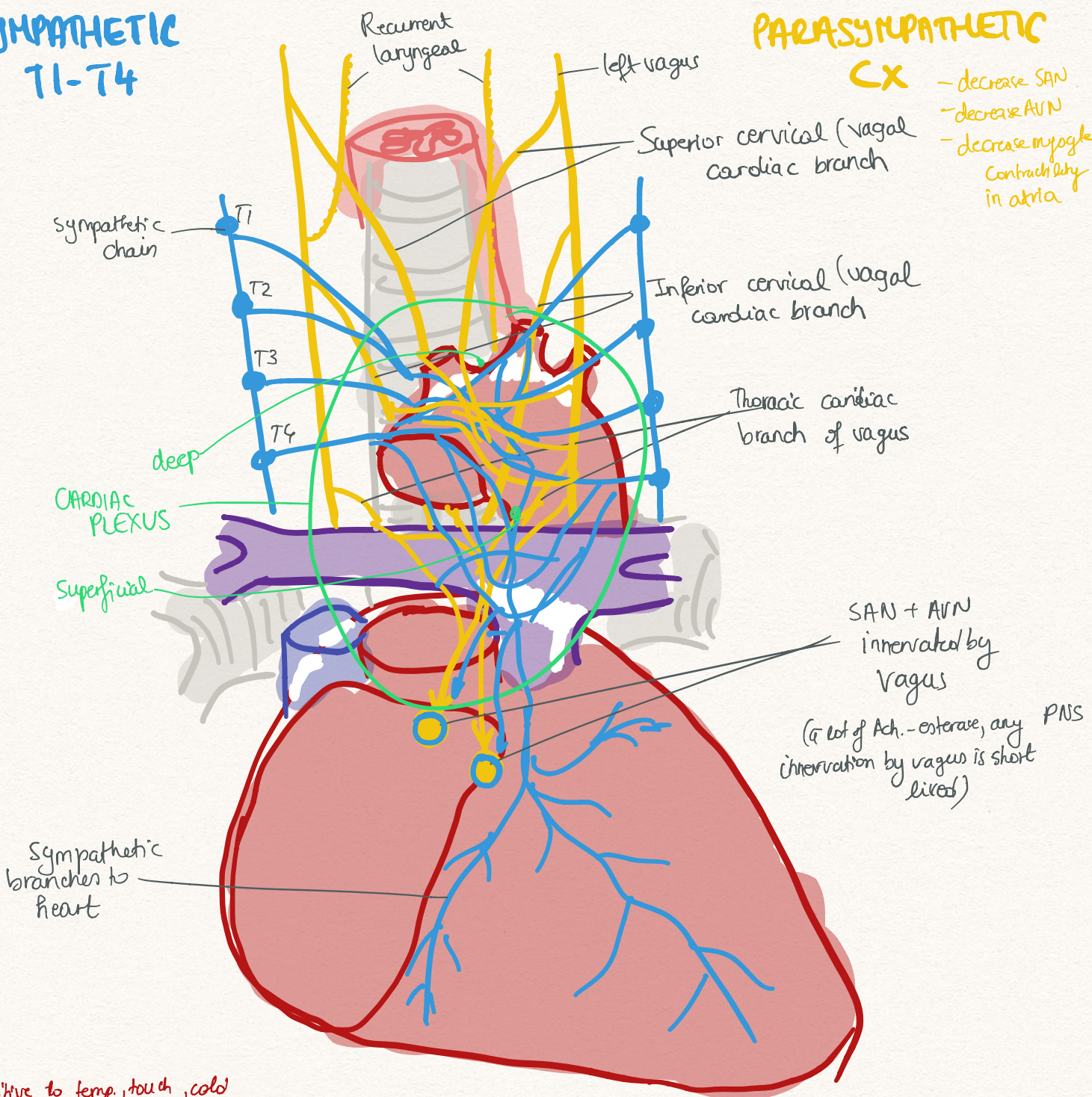
RIGHT vagus → posterior pulmonary plexus

LEFT + RIGHT vagus → esophageal plexus → the anterior + posterior vagi of stomach are a mixture of both left + right vagus nerves

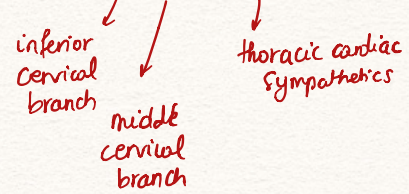
SYMPATHETIC T1-T4

PARASYMPATHETIC

- CX**
- decrease SAN
 - decrease AVN
 - decrease myocyte contractility in atria



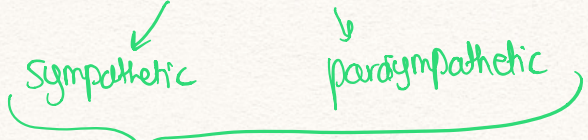
Heart is insensitive to temp, touch, cold, but ischaemia stimulates pain



→ T1, - T5 referred pain

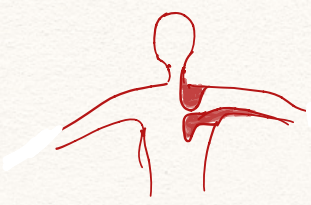
INNERVATION OF HEART

CARDIAC PLEXUS

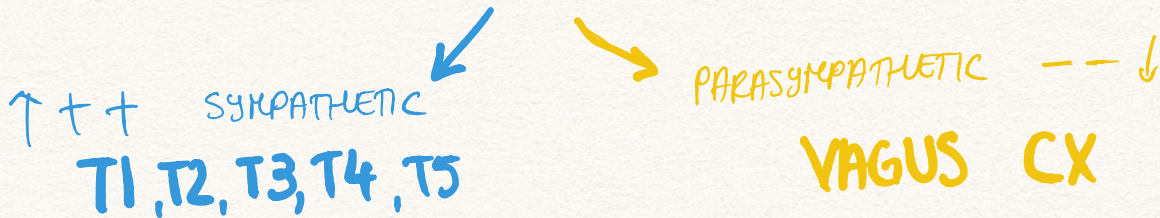


- Heart
- SAN, AVN
 - cardiac vessels

- pulmonary plexus:
- bronchial wall smooth muscle
 - pulmonary vessels



NERVES OF THE HEART



MOTOR

PREG: INTERMEDIA LATERAL COLUMNS
POSTG: STELLATE & MIDDLE CERVICAL GANGLIA

- increase HR/SAN rate
 - increase AVN conduction
 - increase atrial & ventricular myocyte contractility
- norepinephrine has to be carried away by bloodstream or reuptake so
LONG LIVED SLOW

DORSAL ROOT OF VAGUS

- lower SAN rate
 - lower AVN conduction
 - lower myocyte contractility ATRIAL
- a lot of acetylcholine esterase → so any vagal stimulation is short lived
FAST SHORT LIVED

SENSORY

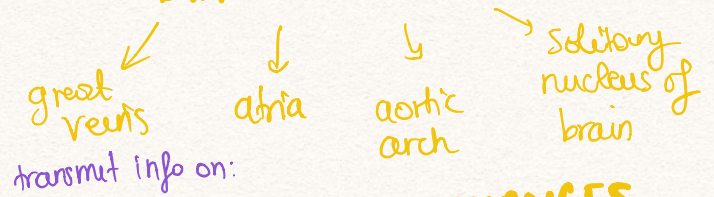
DORSAL ROOT GANGLIA T1-5

→ PAIN SENSATION
→ heart attacks down the arm

①

FROM INFERIOR GANGLIA

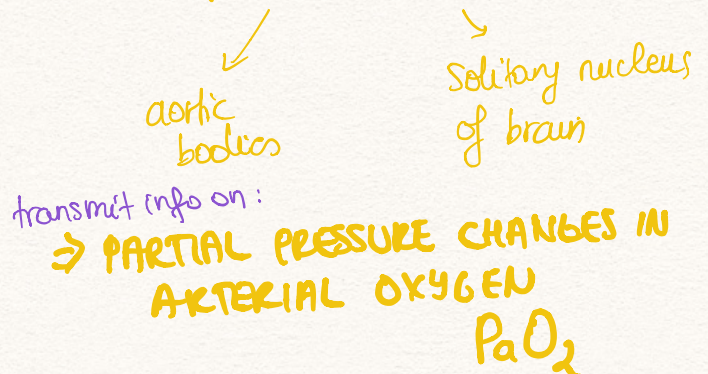
- send a peripheral process to
BARORECEPTORS



⇒ **BLOOD PRESSURE CHANGES**

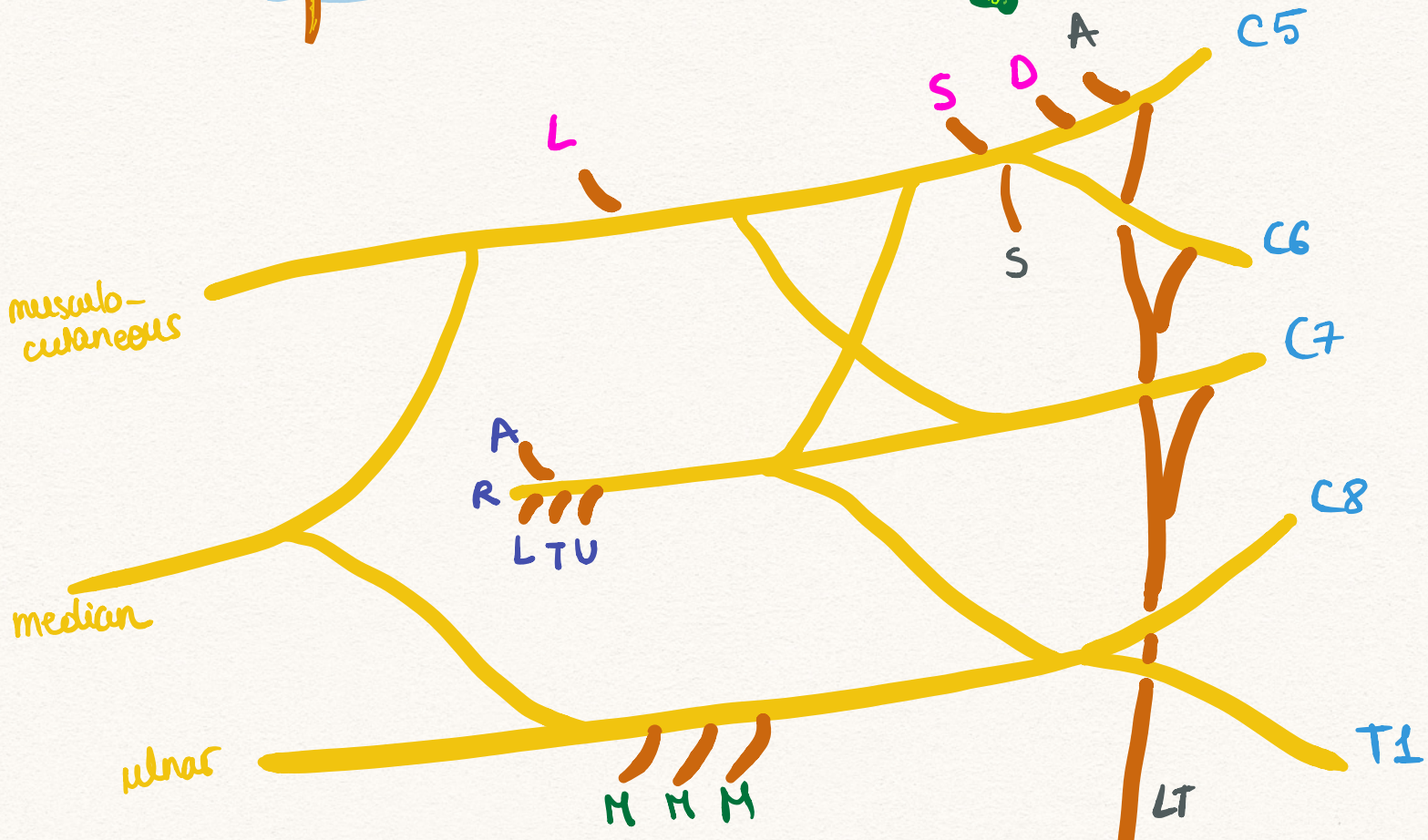
②

CHEMORECEPTORS





BRACHIAL PLEXUS



ULTRA TRIDENT

- Upper Subscapularis - Subscapularis
- Lower Subscapularis - Subscapularis + Teres Major
- Thoracodorsal - latissimus Dorsi
- Radial - posterior arm + forearm
- Axillary - deltoid + teres minor

SALT

- Subclavian
- Acessory phrenic
- Long } serratus anterior
- Thoracic }

LSD

- Lateral pectoral - pec. major
- Suprascapular - supra + infra spinatus
- Dorsal scapular - levator scapulae & rhomboids

MADE MANY MERMAIDS

- Medial pectoral - through pec minor to pec major (both)
- Medial cutaneous of arm - medial arm sensation
- Medial cutaneous of forearm - medial forearm cutaneous

SHOULDER MUSCLES

ROTATOR CUFF

Abductor
15°

SUPRASPINATUS → greater tubercle

External
Rot

INFRASPINATUS → greater tubercle

External
Rot

TERES MINOR → greater tubercle

Internal
Rot

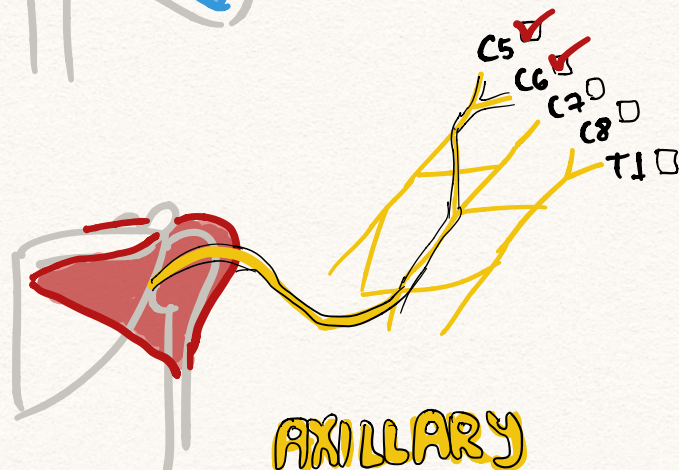
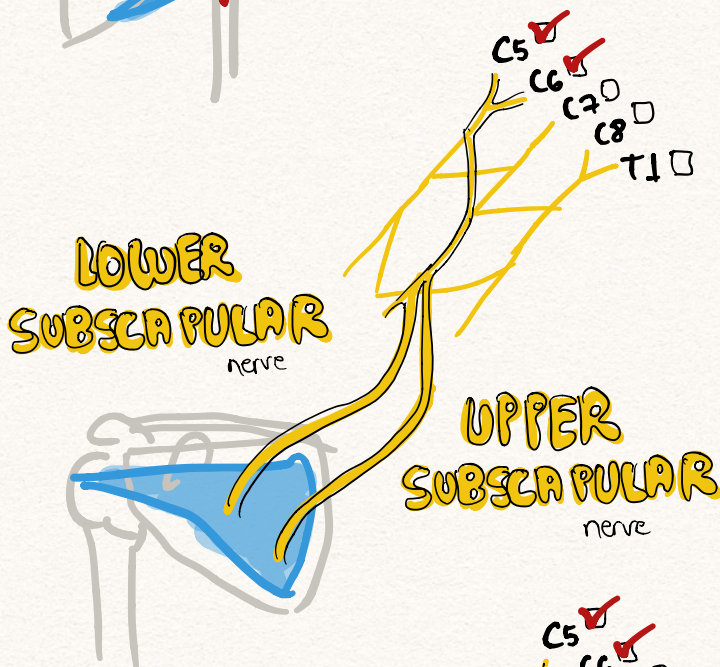
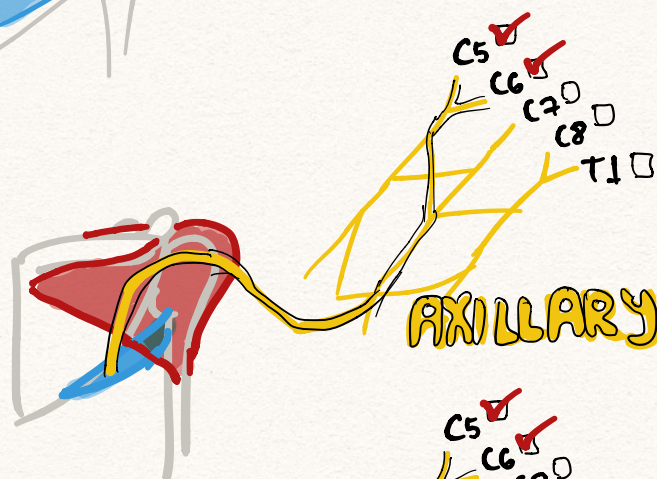
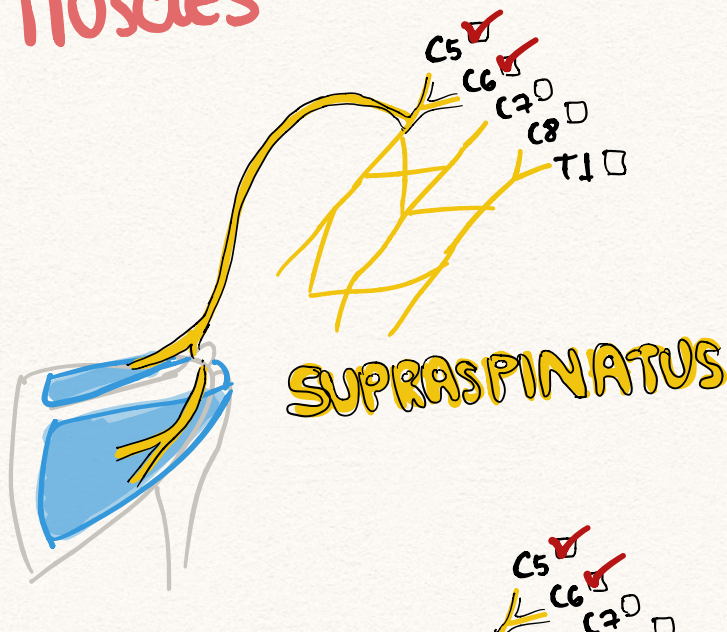
SUBSCAPULARIS → lesser tubercle

DELTOID

Flexion - anterior
Abduction - middle
15° +

- lateral 1/3 of clavicle }
 - acromion } → deltoid
 - spine of scapula } tuberosity

Extension - posterior



DELTOID

Flexion - anterior
Abduction - middle
15° +

- lateral 1/3 of clavicle }
 - acromion } → deltoid
 - spine of scapula } tuberosity

Extension - posterior

BRACHIAL MUSCLES

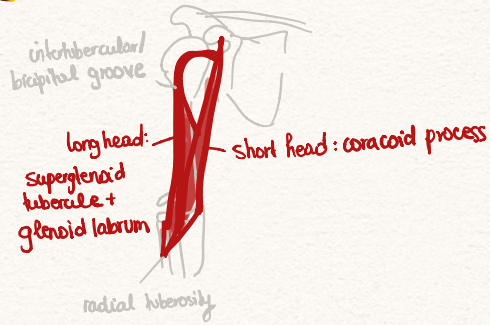
ANTERIOR

Biceps brachii

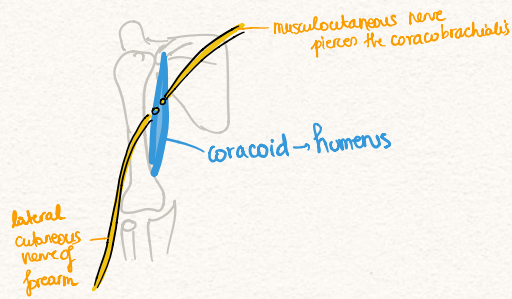
SUPINATOR
FLEXOR ✓

MUSCULOCUTANEOUS

C5 C6 C7

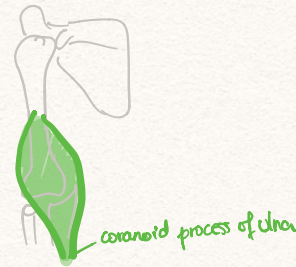


Coracobrachialis



Brachialis

FLEXOR ✓



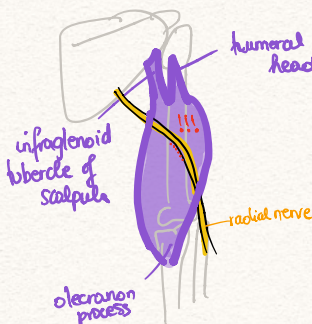
POSTERIOR

Triceps brachii

EXTENSOR —●—

C5 C6 **C7** C8 C9

RADIAL NERVE



Forearm Flexor Muscles

MEDIAN NERVE

ULNAR NERVE

SUPERFICIAL

Pronator Teres
Flexor Carpi radialis
Palmaris longus
Flexor carpi ulnaris

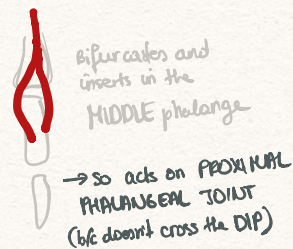
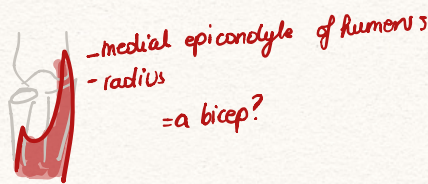
PT *Median nerve pierces PT!!
FCR
PL *insert on the palmar aponeurosis
FCU *ULNAR NERVE



MIDDLE

Flexor Digitorum Superficialis

CT



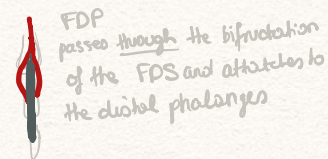
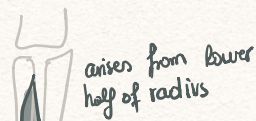
DEEP

Flexor Pollicis Longus FPL

CT

Flexor Digitorum Profundus FDP

CT

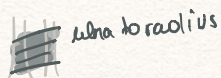


ULNAR NERVE → digits 4+5

MEDIAN NERVE → digits 2+3

So you can test the median and ulnar nerve by bending the DIP (distal interphalangeal joints for 2,3 vs 4,5)

Pronator quadratus PQ



Forearm Extensor Muscles

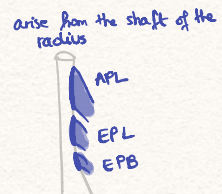
RADIAL NERVE ALL

3 carpi
 Extensor carpi radialis longus ECRL
 Extensor carpi radialis brevis ECRB
 Extensor carpi ulnaris ECU

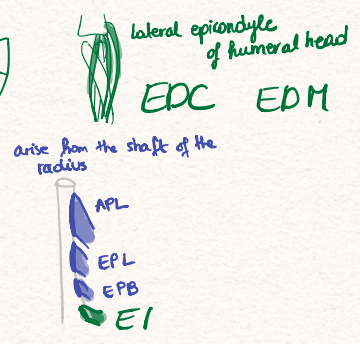


3 pollicis
 Abductor Pollicis Longus APL
 Extensor Pollicis Longus EPL
 Extensor Pollicis Brevis EPB

SNUFF-BOX



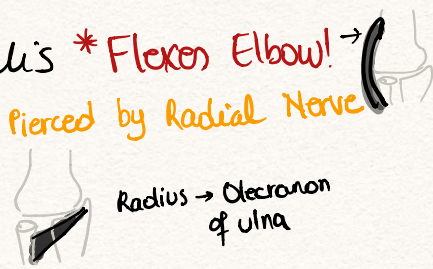
3 digit
 Extensor digitorum communis EDC
 Extensor digiti minimi EDM
 Extensor indicis EI



3 other
 Brachioradialis * Flexes Elbow!
 Supinator * Pierced by Radial Nerve
 Anconeus

lateral supracondylar ridge

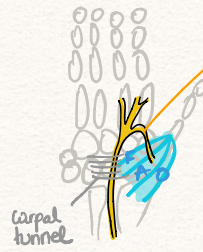
Radius → Olecranon of ulna



HAND MUSCLES

THENAR

Abductor Pollicis Brevis APB
 Flexor Pollicis Brevis FPB
 Opponens Pollicis OP

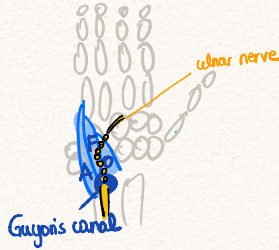


Recurrent branch of median nerve

MEDIAN NERVE

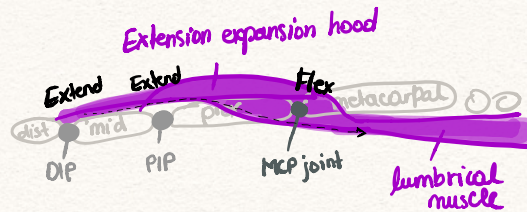
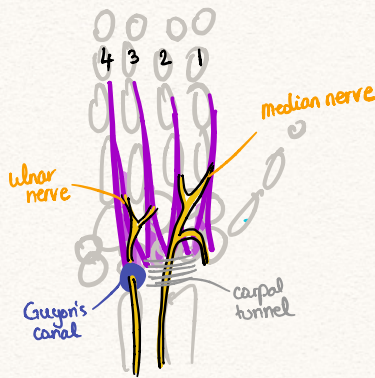
HYPOTHENAR

Abductor Digiti Minimi ADM
 Flexor digiti minimi FDM
 Opponens digiti minimi ODM



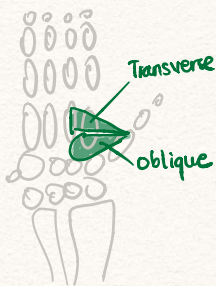
ULNAR NERVE

LUMBRICAL (from flexor digitorum profundus tendon → to back of digits)



ULNAR NERVE
 MEDIAN NERVE

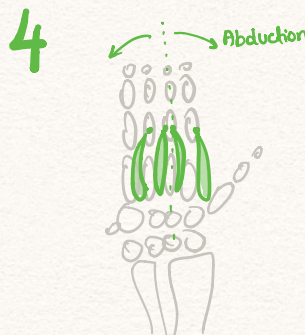
Abductor Pollicis



ULNAR NERVE

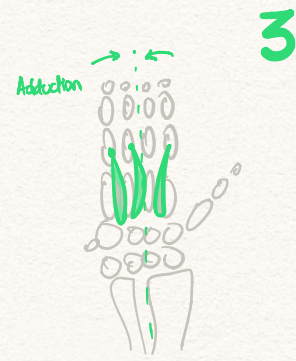
Interossei muscles

Dorsal interossei



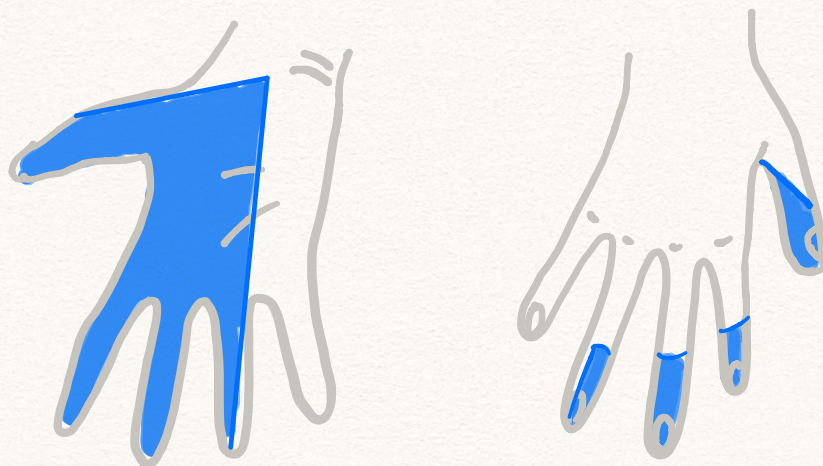
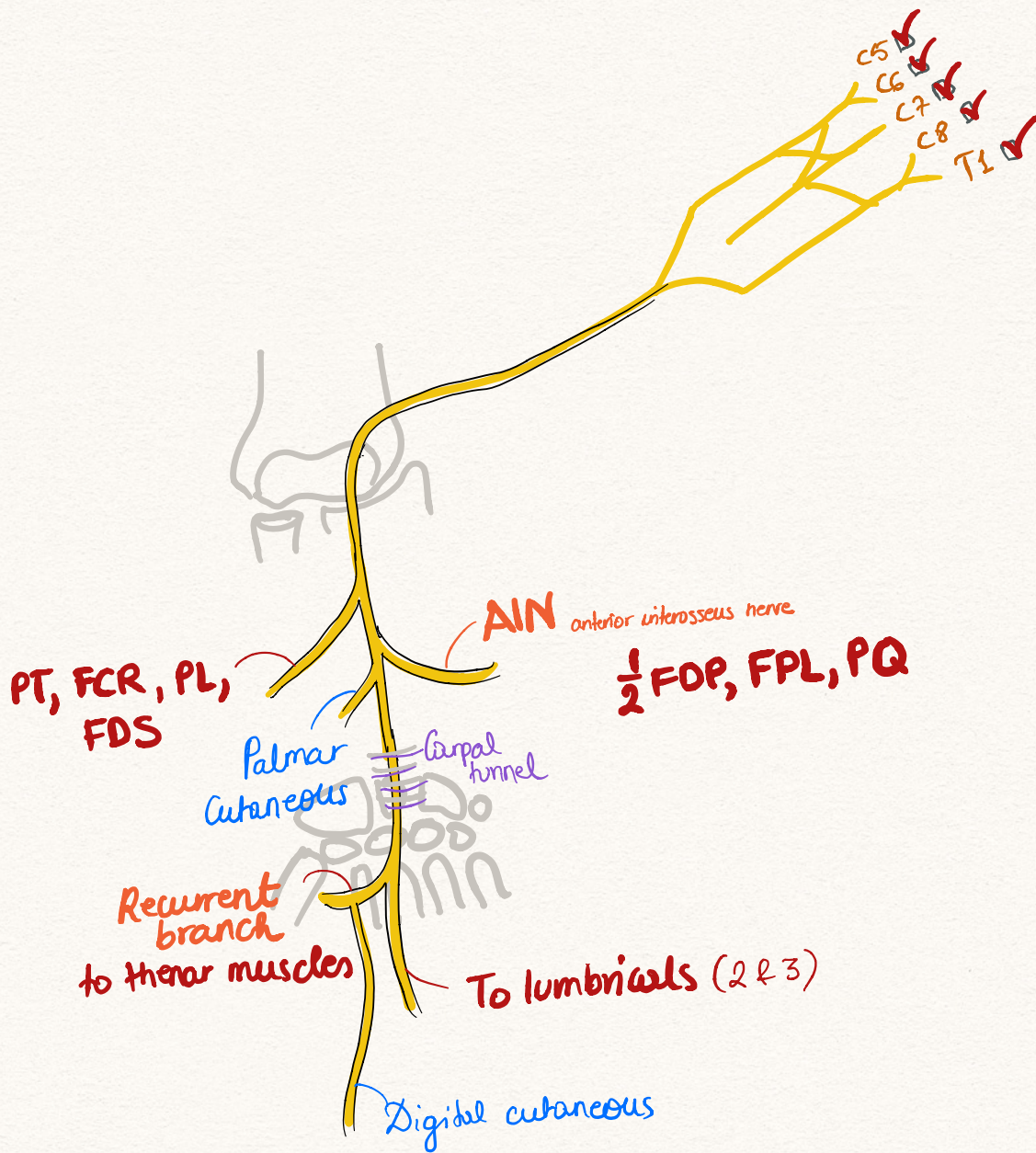
DAB ULNAR NERVE PAD

Palmar interossei

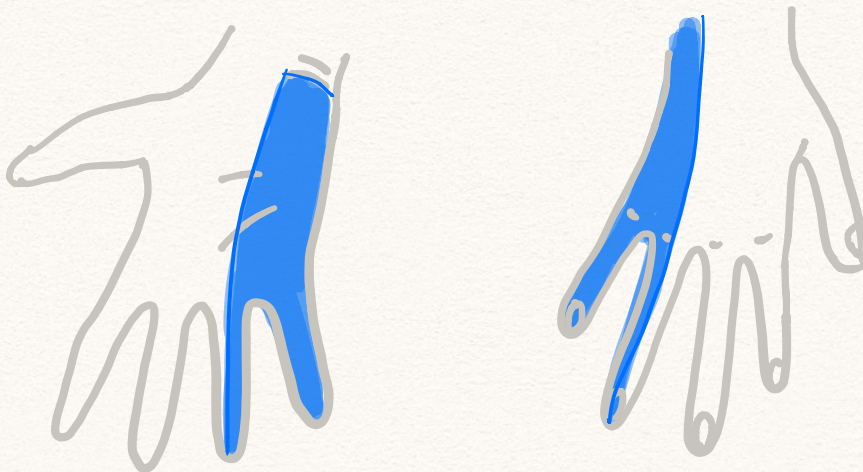
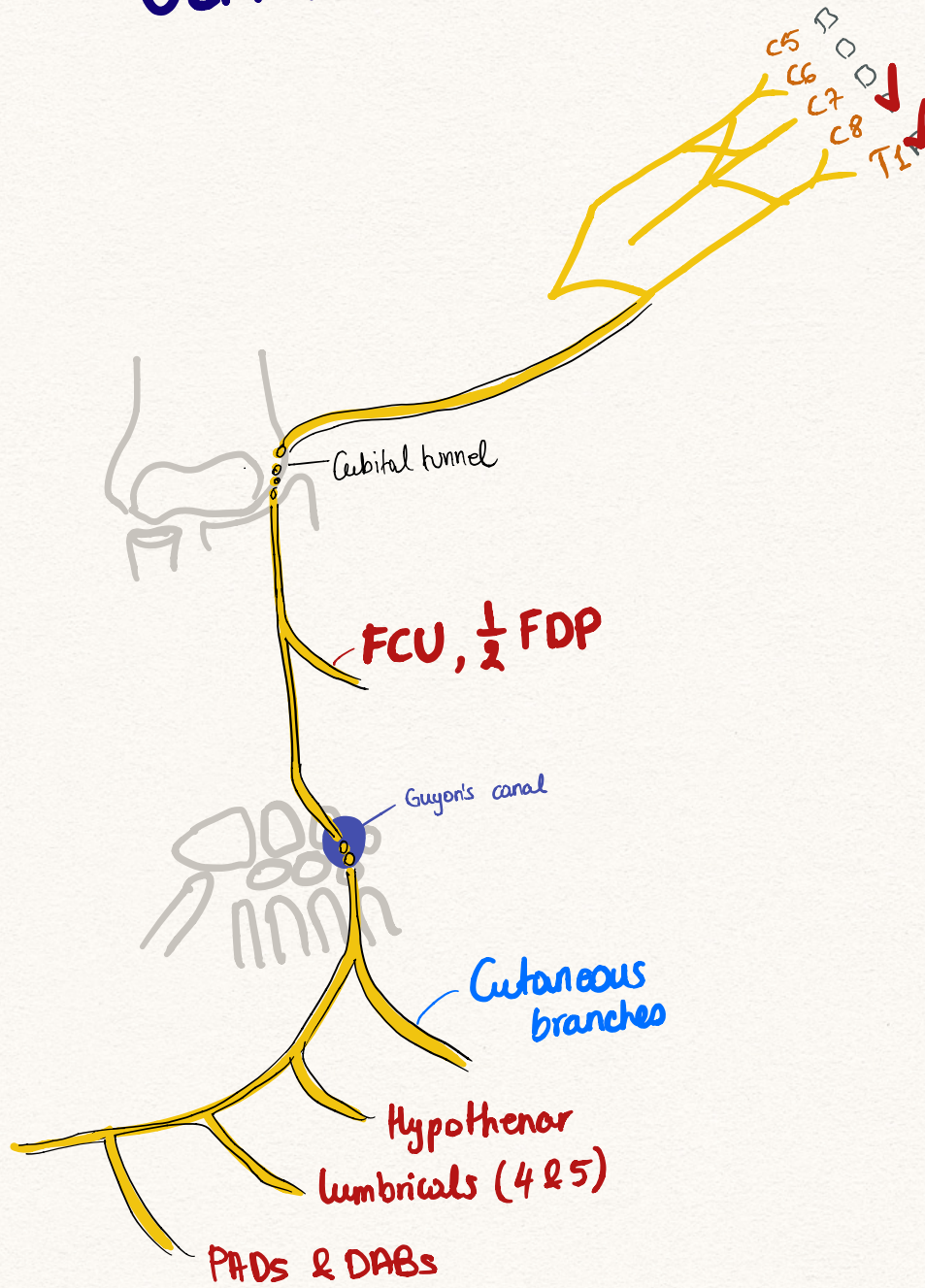


3

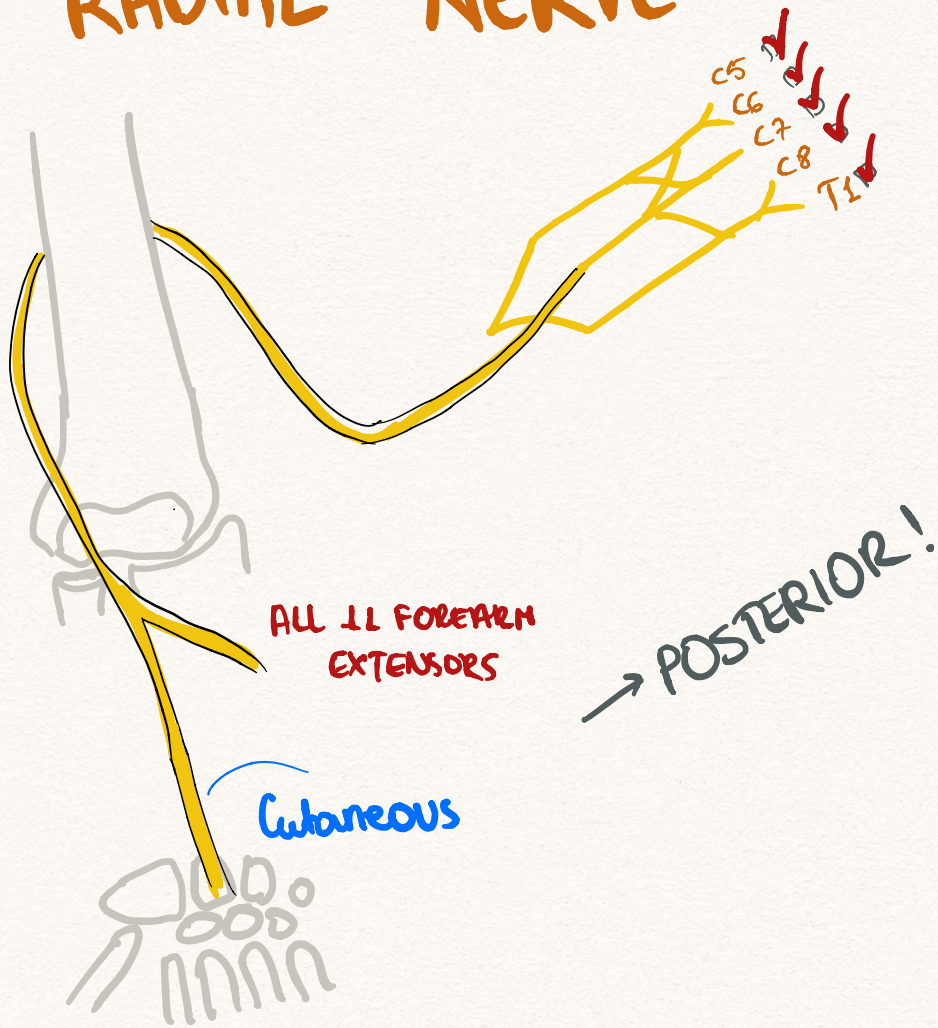
MEDIAN NERVE



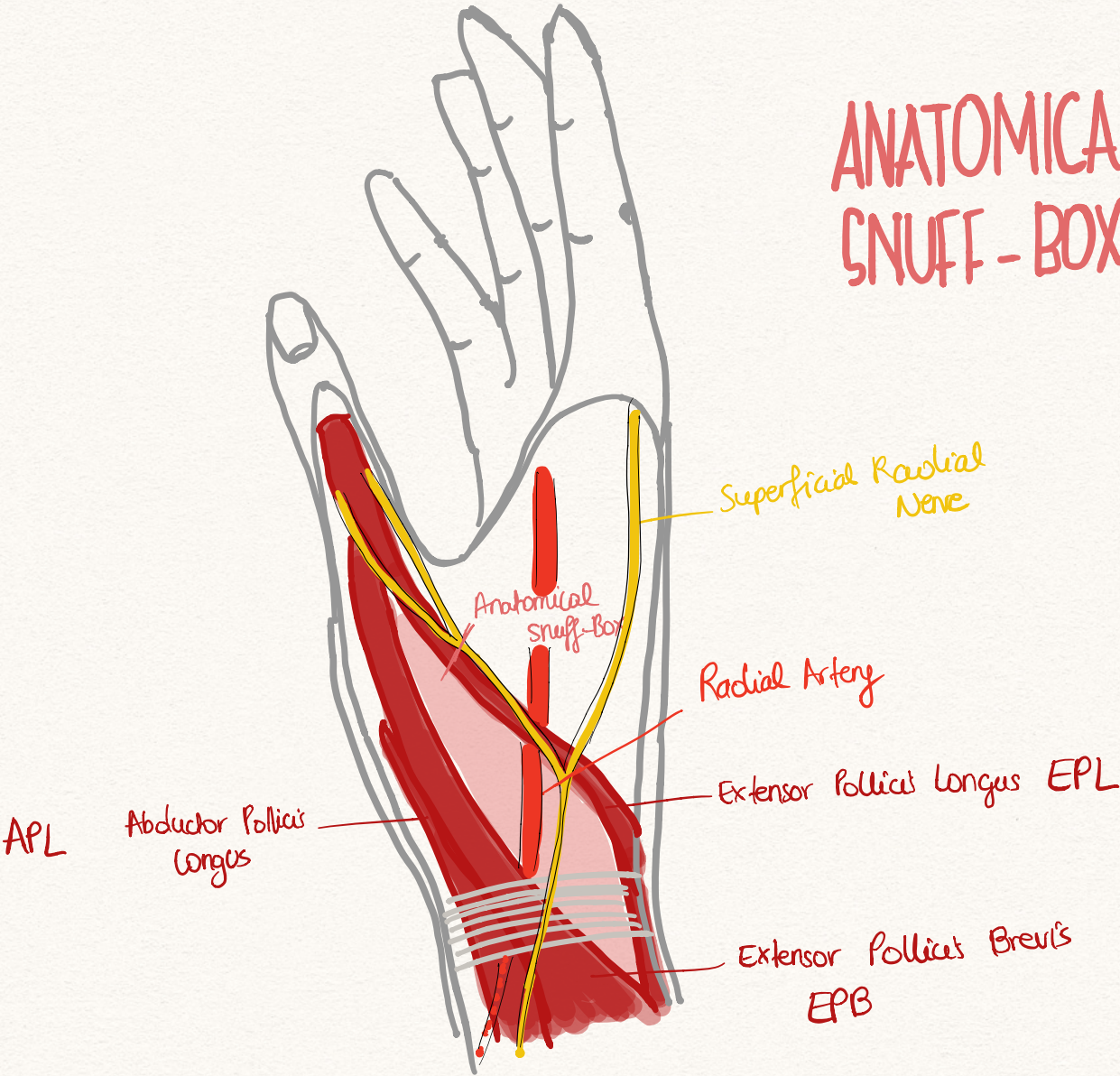
ULNAR NERVE



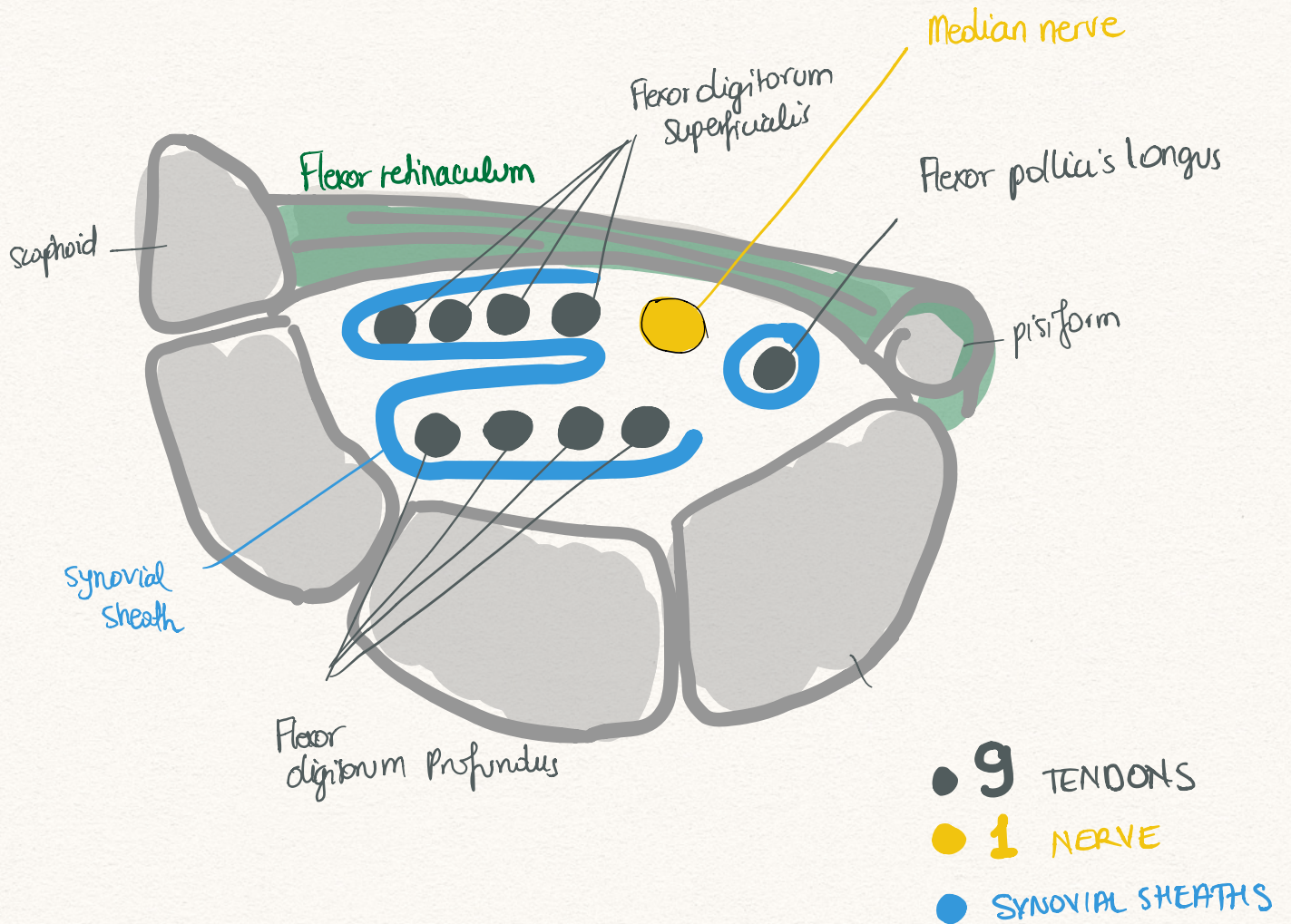
RADIAL NERVE



ANATOMICAL SNUFF-BOX



CARPAL TUNNEL

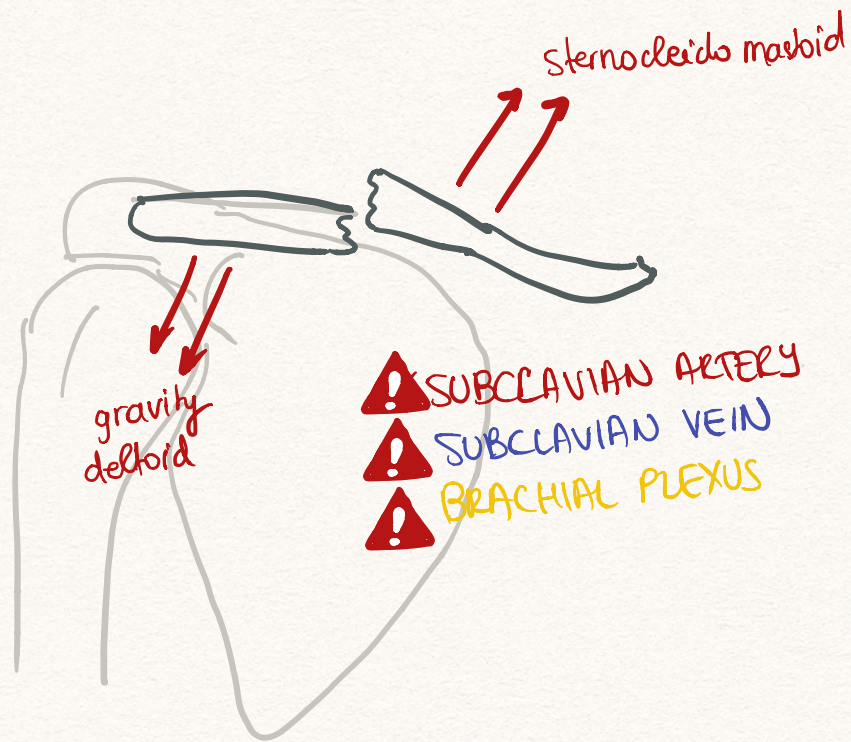




CLINICAL CONSIDERATIONS

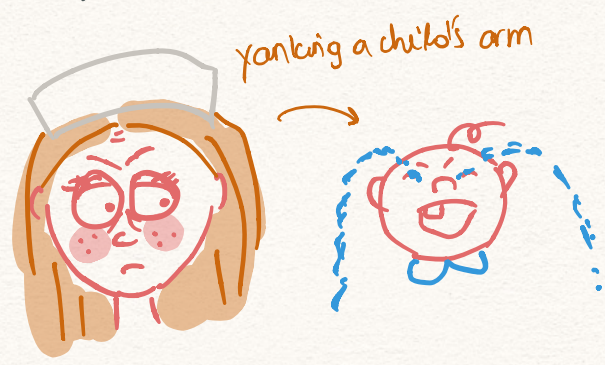
— FRACTURE OF THE CLAVICLE

middle $\frac{1}{3}$ of clavicle



CLINICAL CONSIDERATIONS - ELBOW

① **NURSEMAID'S ELBOW**



= subluxation of the head of radius from the annular ligament

presents: flexed pronated } forearm close to body

solution: extend supinate } to screw back in
press on radius

② **LATERAL EPICONDYLITIS**



= **TENNIS ELBOW**

= inflammation of common extensor tendon = lateral epicondyle

③ **MEDIAL EPICONDYLITIS**



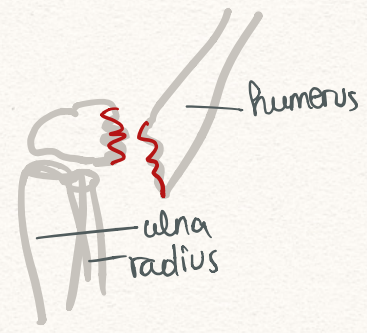
= **GOLFER'S ELBOW**

④ **SUPRA CONDYLAR FRACTURE**

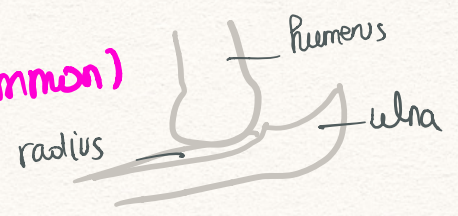


CUBITAL FOSSA

median nerve
brachial artery
biceps brachii tendon
median cubital vein
radial nerve

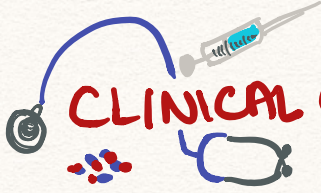


⑤ **ELBOW DISLOCATION -> POSTERIOR (most common)**



⑥ **OLECRANON FRACTURE**

fall with a flexed elbow



CLINICAL CONSIDERATIONS

- HAND



① * CARPAL TUNNEL SYNDROME = TENDOSYNOVITIS

- repeated hand movements cause it

Contents {

- flexor digitorum superficialis
- flexor digitorum profundus
- median nerve
- flexor pollicis longus



→ sensory loss to palmar + dorsal

flexor = symptoms ☹️
extensor = relief 😊

{

- index
- middle
- 1/2 ring finger
- palmar aspect of thumb

② SUICIDE CUTS

ULNAR SIDE

- ulnar artery
- ulnar nerve
- flexor carpi ulnaris tendon

RADIAL SIDE

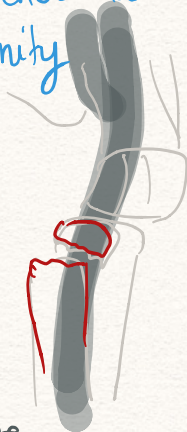
- radial artery
- median nerve
- flexor carpi radialis tendon
- palmaris longus tendon

③ * SCAPHOID FRACTURE

- b/c blood supply is distal to proximal → osteonecrosis may occur
- tenderness in anatomical snuff box

④ COLLE'S FRACTURE = DISTAL RADIUS FRACTURE

- falling on an outstretched hand with extended wrist
- dinner fork deformity



- ulnar styloid process fracture

⑤ BOXER'S FRACTURE

= 5th metatarsal fracture

Anterior superior iliac spine

Anterior inferior iliac spine

greater trochanter

lesser trochanter

iliofemoral ligament *

iliopectineal bursa

pubofemoral ligament

obturator A.

superior pubic ramus

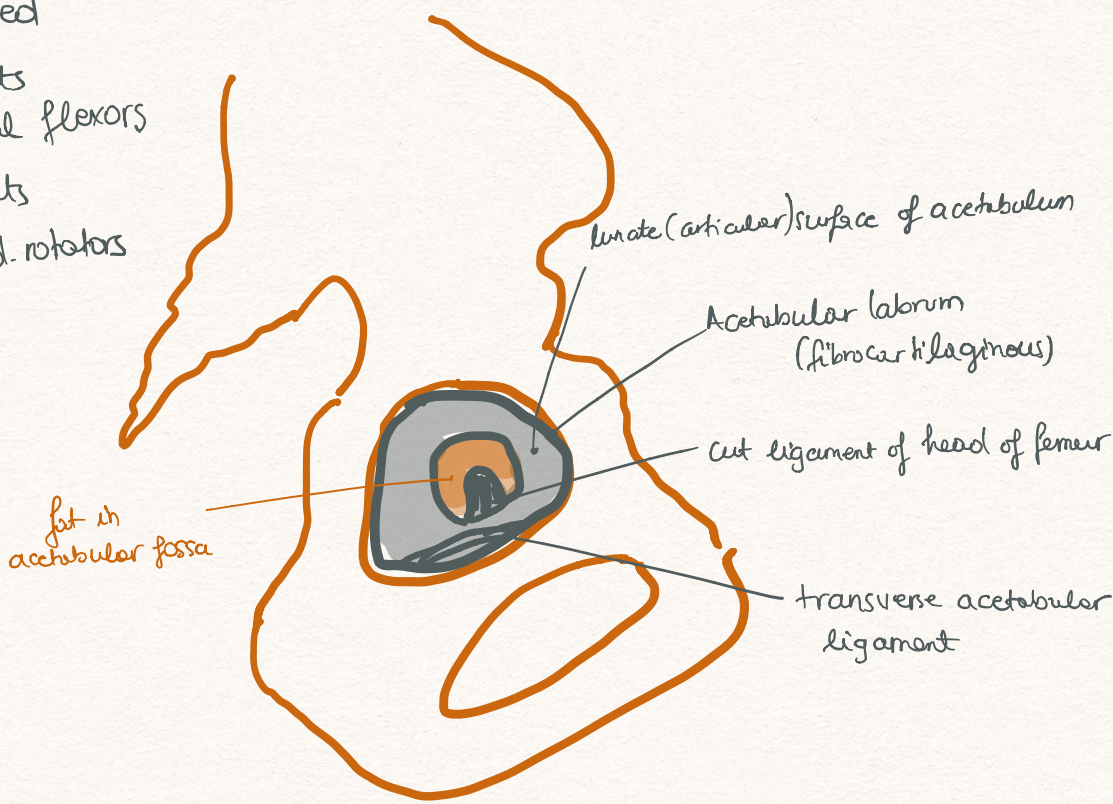
obturator crest

ligament of head of femur

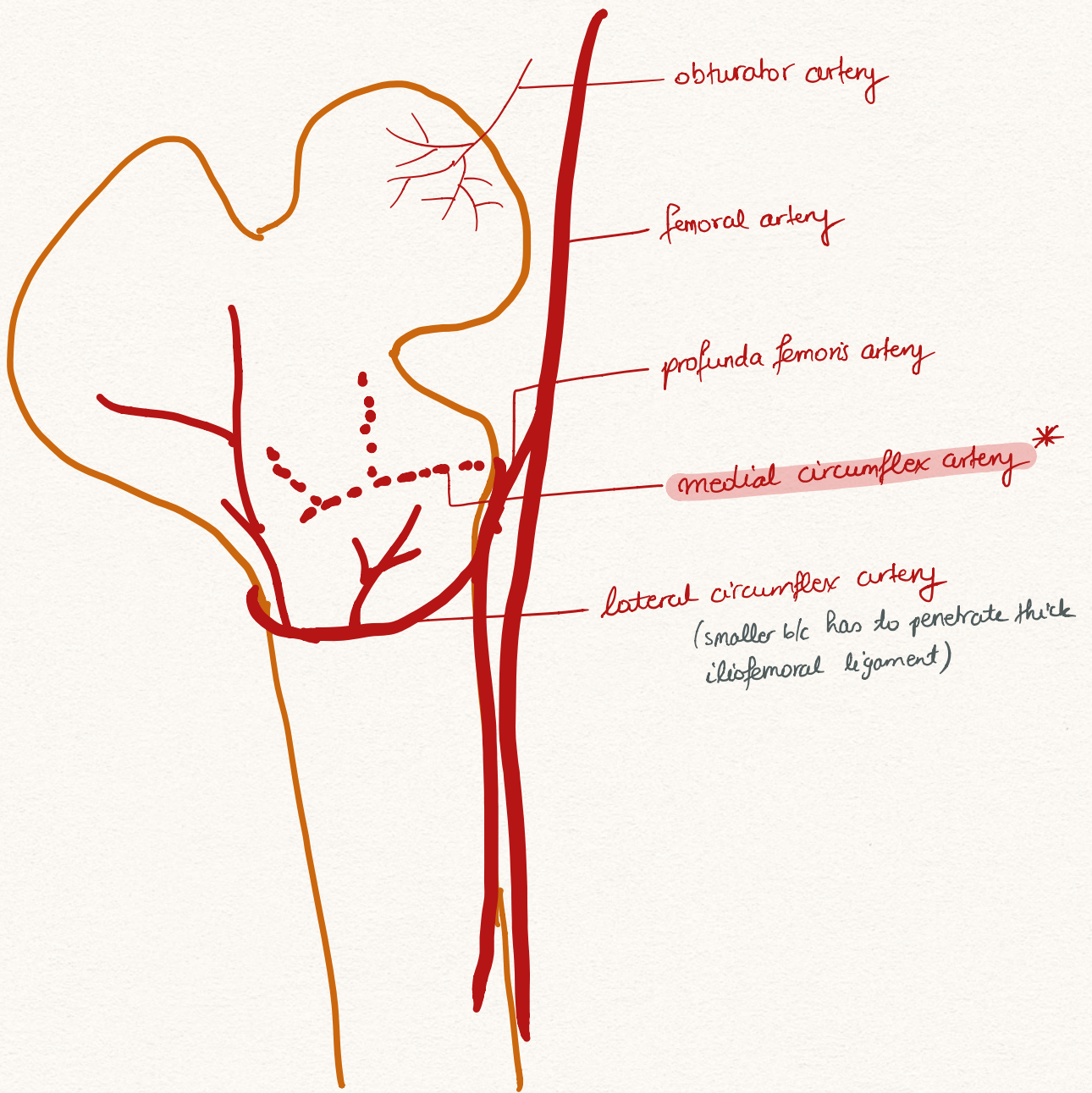
ischiofemoral

Ball & Socket Synovial Joint

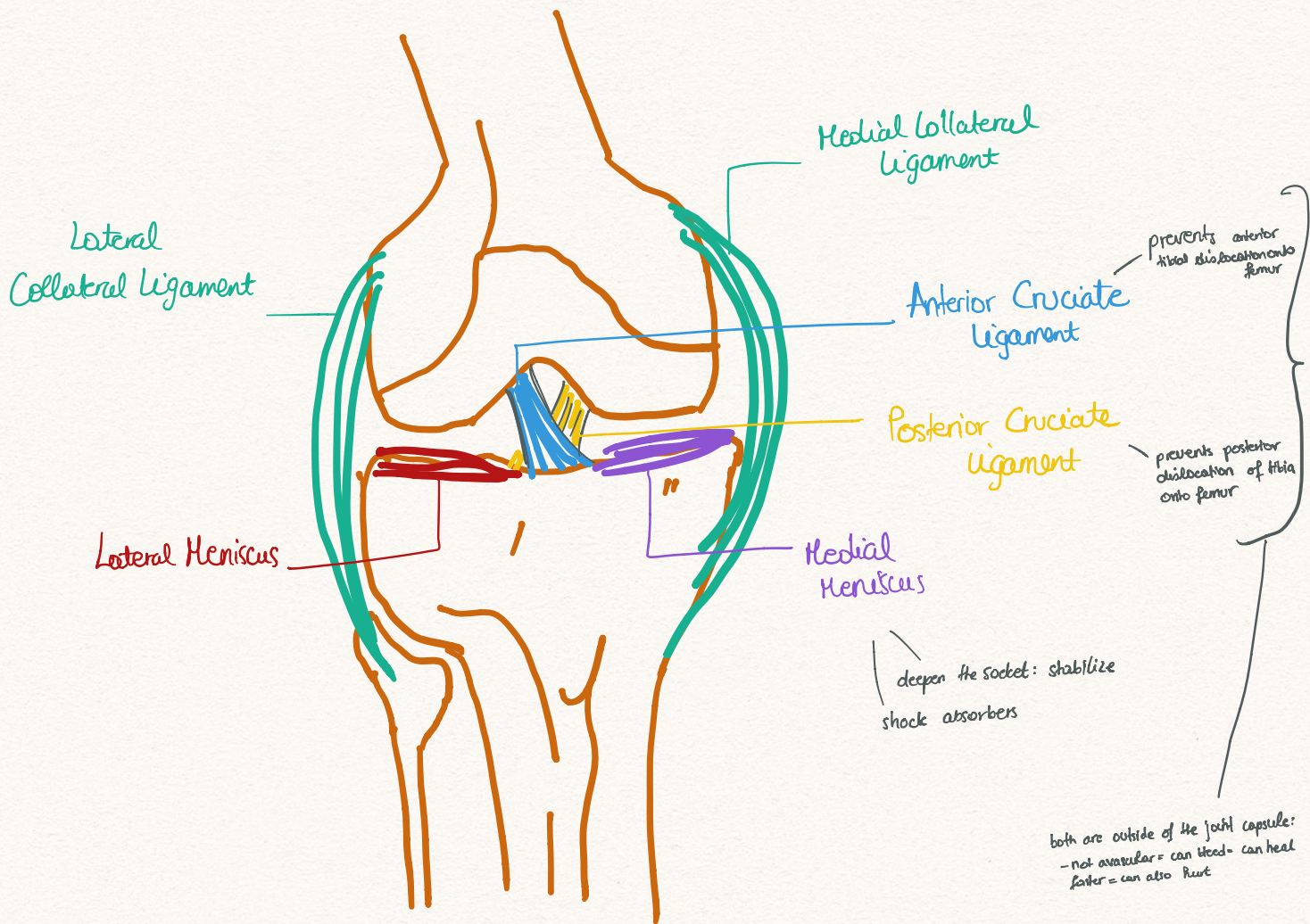
- tight lig. when extended
- anterior: strong ligaments
 - weak ant. medial flexors
- posterior: weak ligaments
 - strong post. med. rotators



LIGAMENTS OF FEMUR



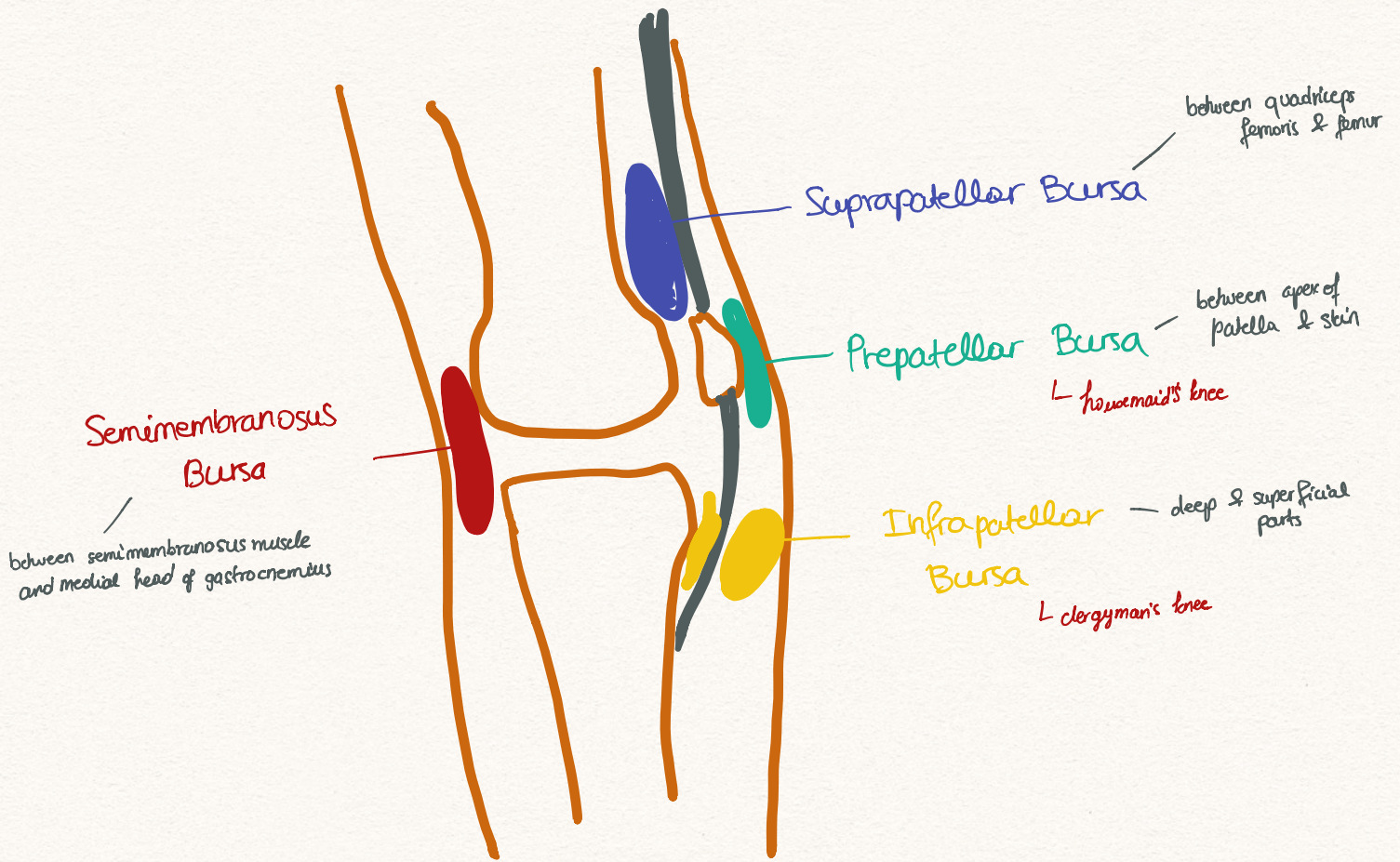
BLOOD SUPPLY TO HEAD OF FEMUR



LIGAMENTS OF KNEE

"Unhappy triad"

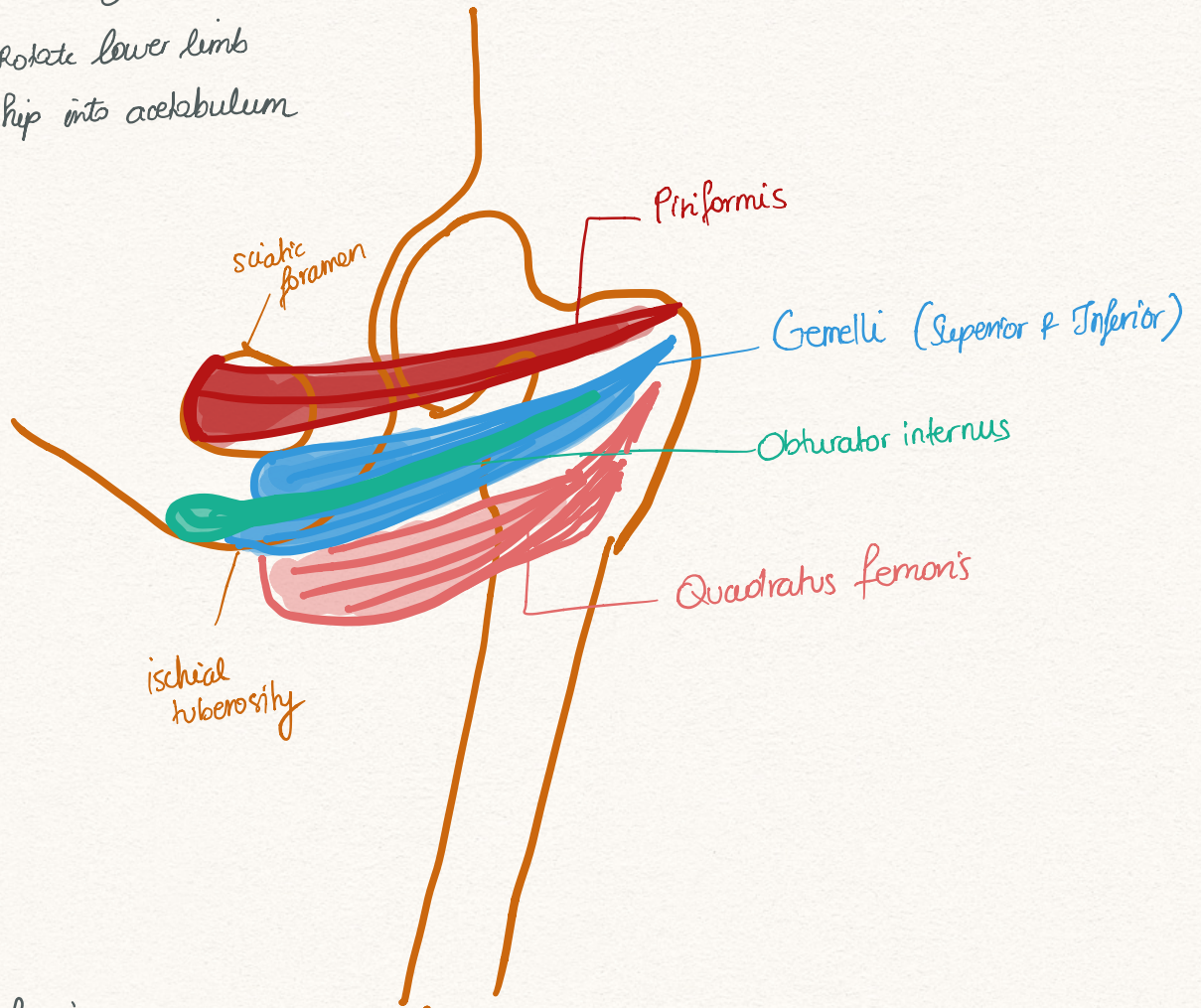
- 1 - medial collateral ligament
- 2 - medial meniscus
- 3 - anterior cruciate ligament



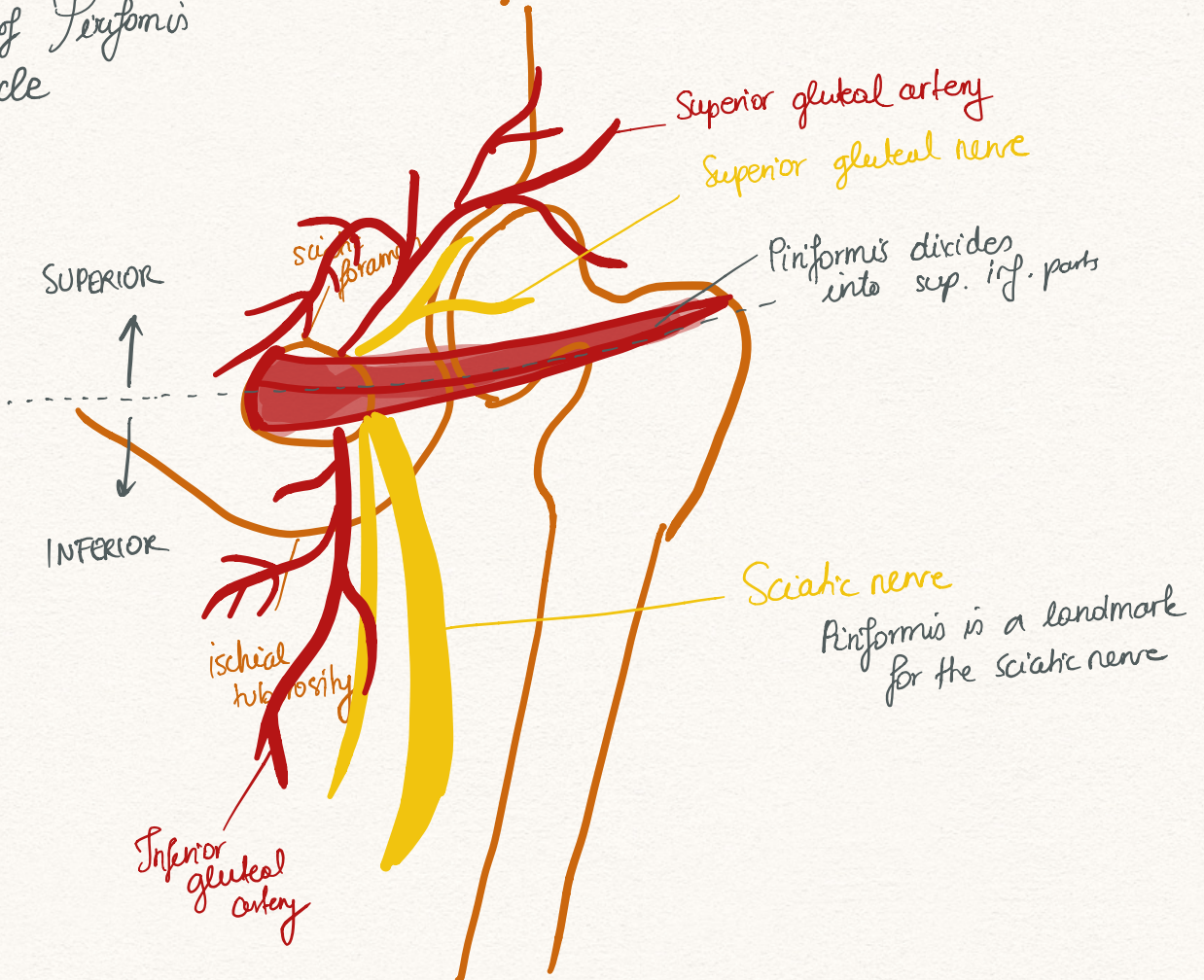
BURSAE OF KNEE

Deep Gluteal Muscles

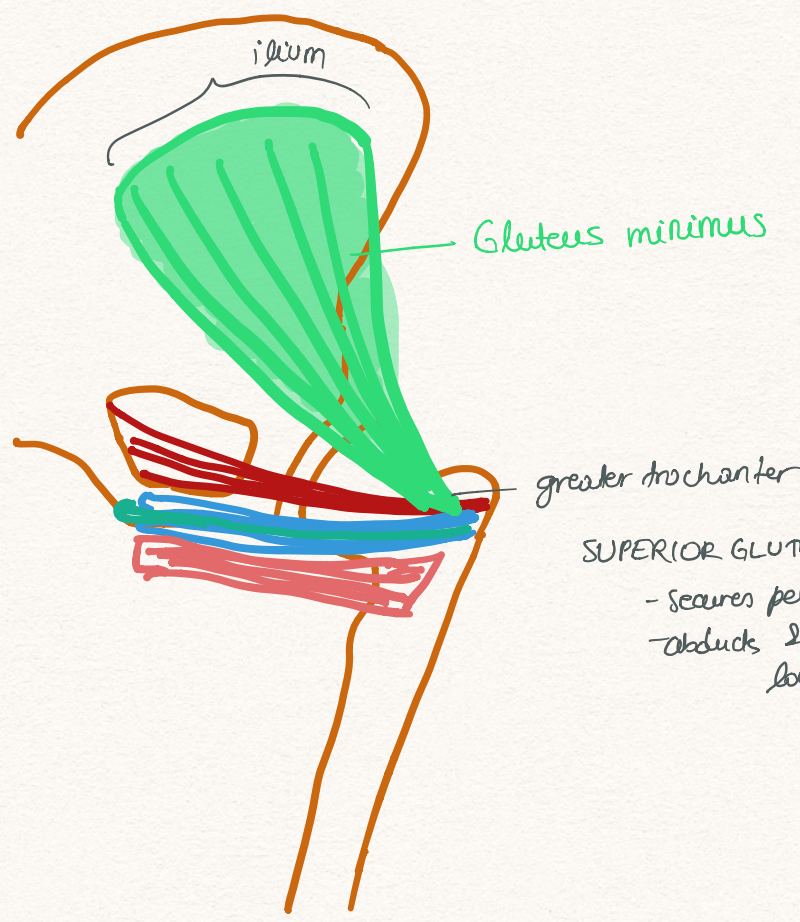
- Laterally rotate lower limb
- Stabilize hip into acetabulum



Significance of Piriformis Muscle

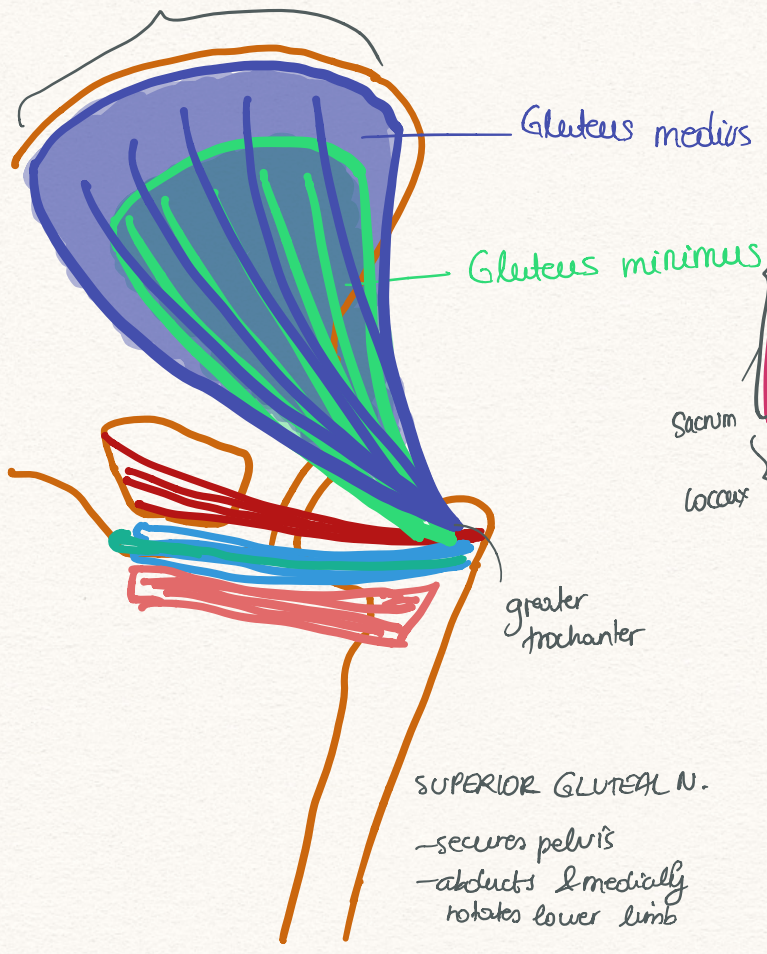


Superficial Gluteal Muscles

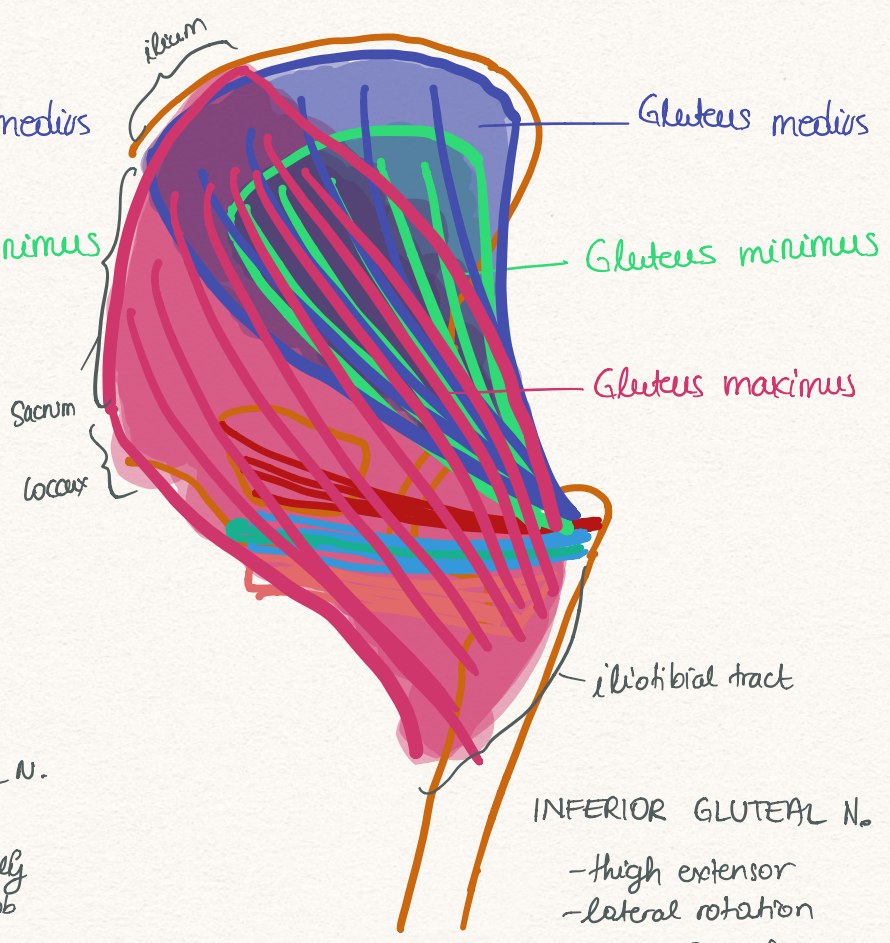


SUPERIOR GLUTEAL NERVE
 - secures pelvis (prevents drop)
 - abducts & medially rotates lower limb

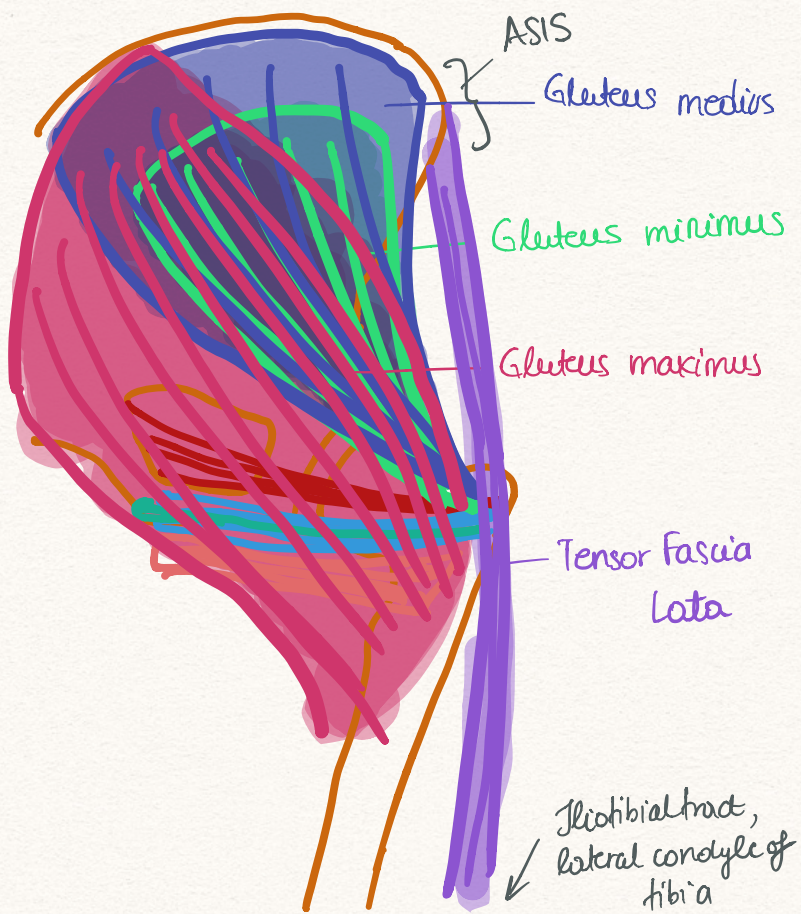
gluteal surface of ilium



SUPERIOR GLUTEAL N.
 - secures pelvis
 - abducts & medially rotates lower limb



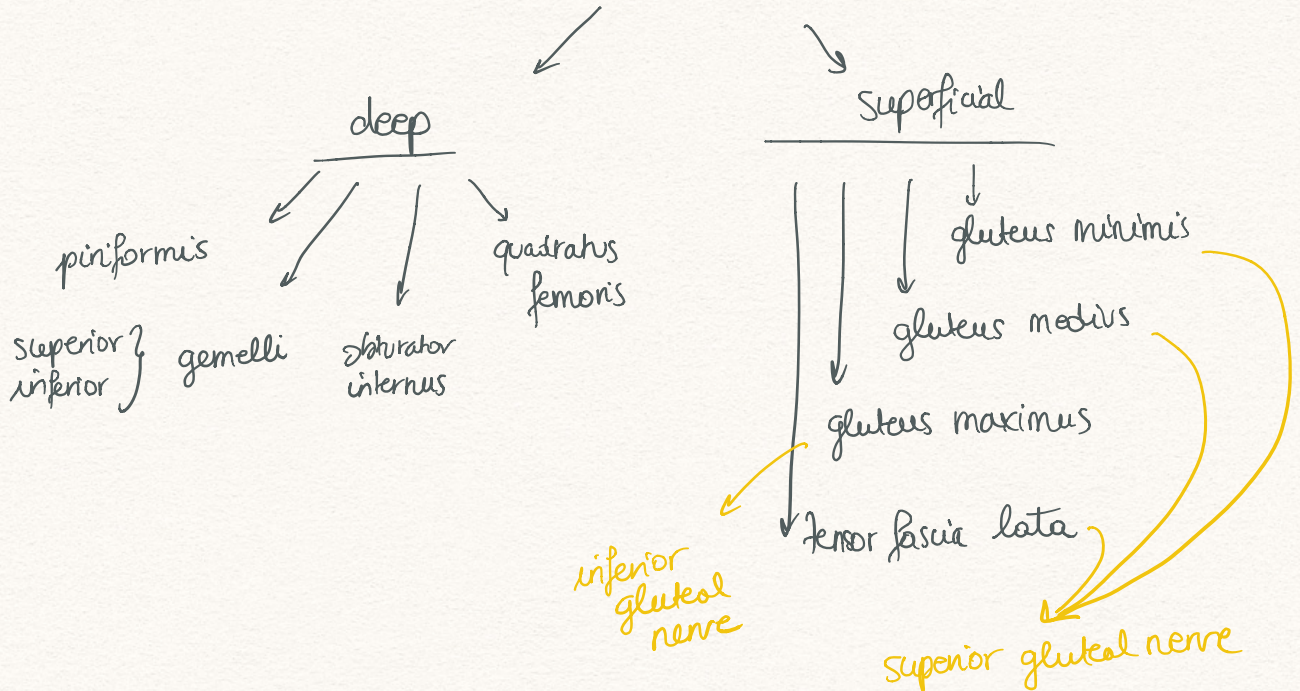
INFERIOR GLUTEAL N.
 - thigh extensor
 - lateral rotation
 - running
 - climbing
 - squatting



SUPERIOR GLUTEAL N.

Positive Trendelenberg sign
 = damage to SGN.
 = pelvic drop.

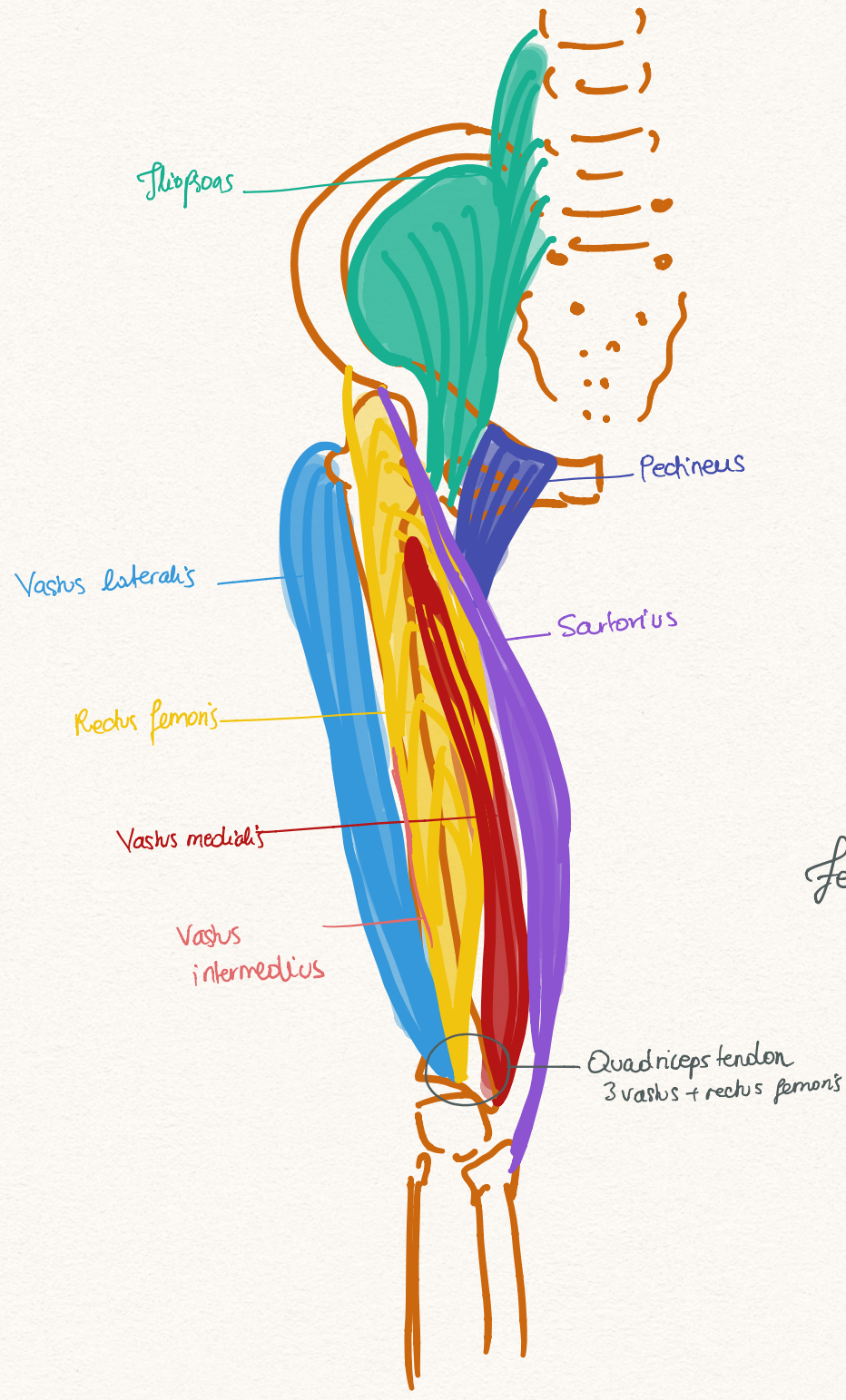
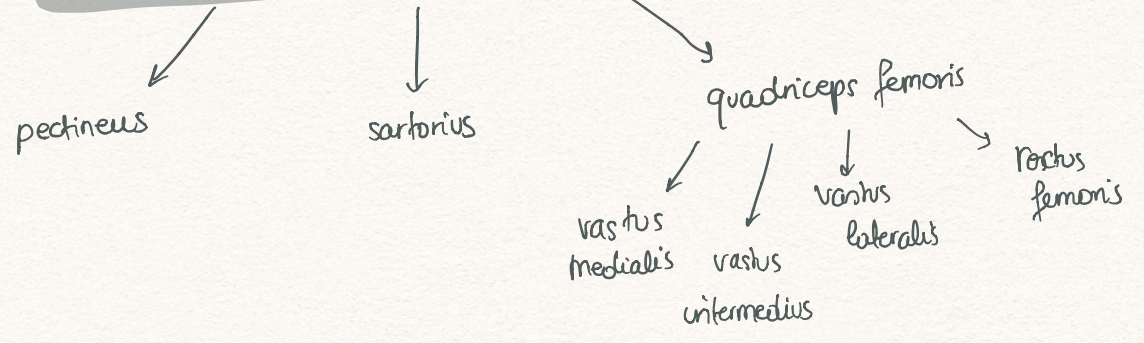
GLUTEAL MUSCLES



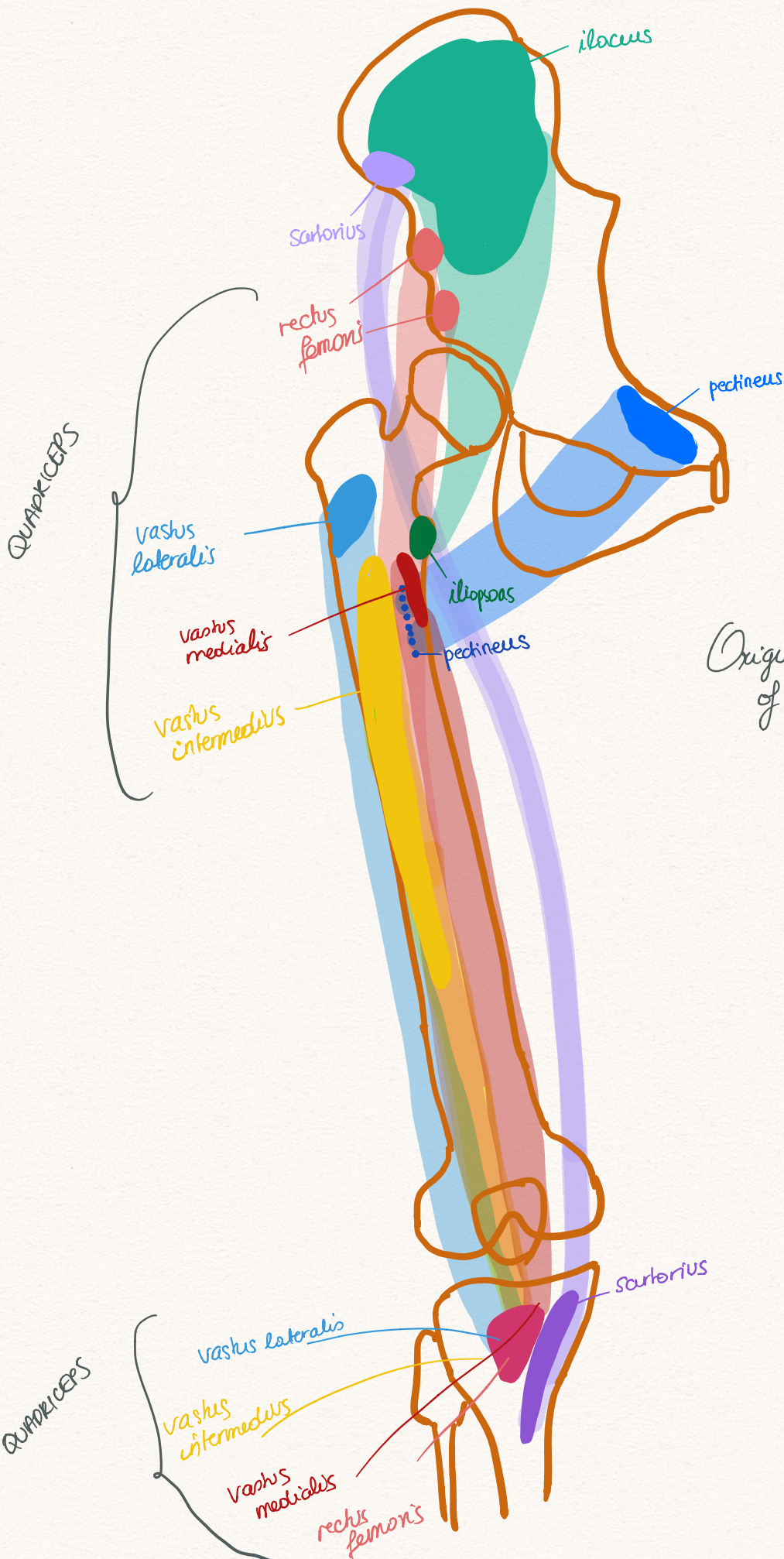
- hip flexion
- knee extension

ANTERIOR COMPARTMENT OF THIGH

+ iliopsoas



Femoral Nerve
L2-L4



Origins and attachments of the muscles of the anterior compartment of the thigh

FEMORAL NERVE
L2-L4

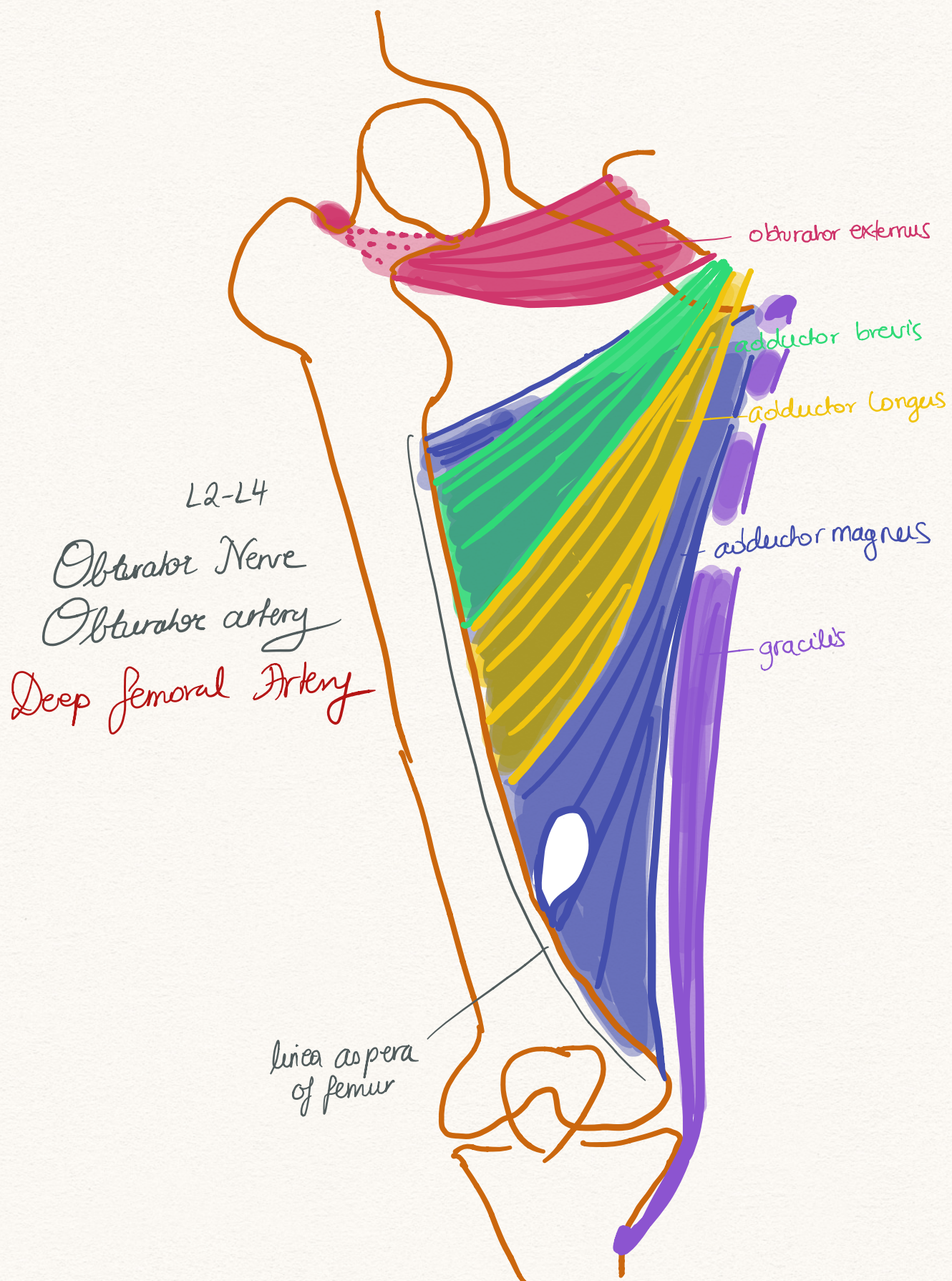
QUADRICEPS

QUADRICEPS

MEDIAL COMPARTMENT OF THIGH

hip adductors

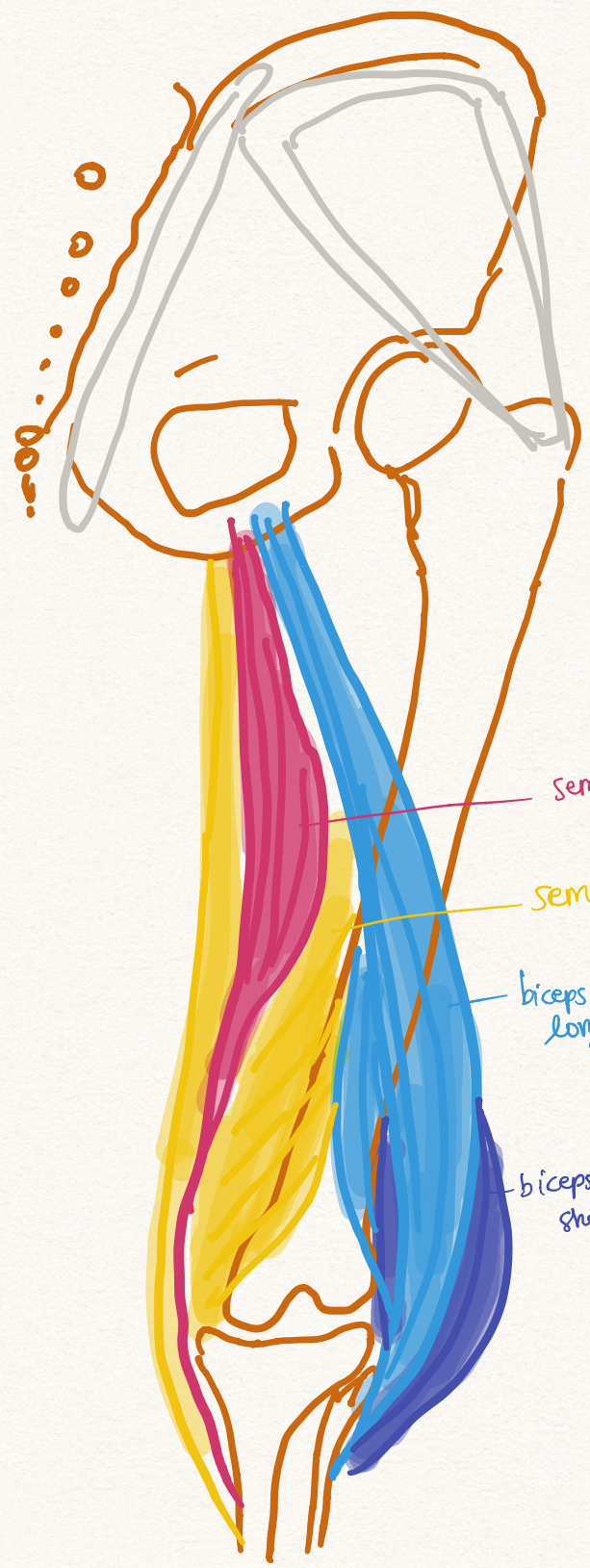
- gracilis
- obturator externus
- adductor brevis
- adductor longus
- adductor magnus



flex knee
extend hip

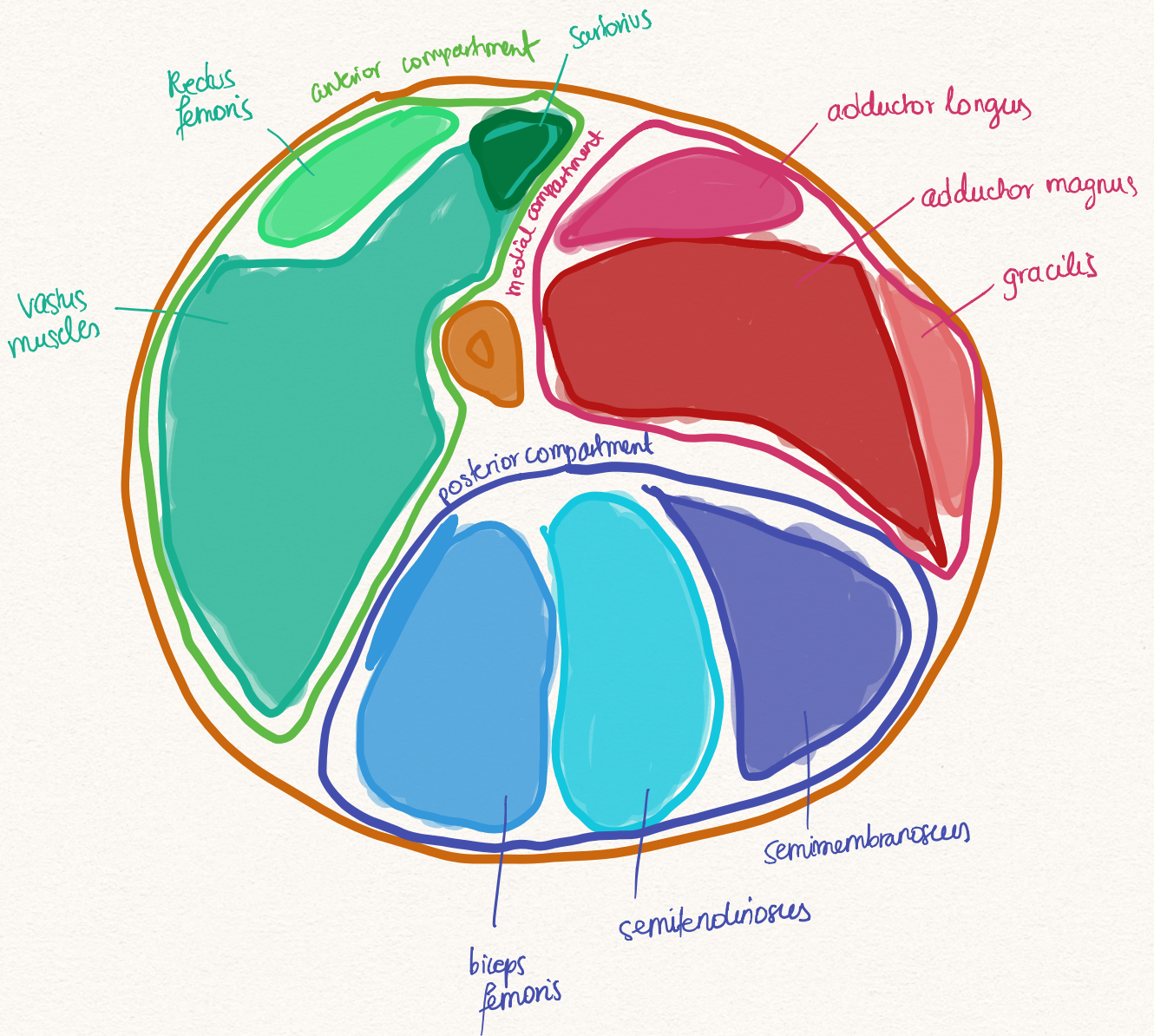
POSTERIOR COMPARTMENT OF THIGH

biceps femoris Semimembranosus semitendinosus



Sciatic Nerve
L4 - S3

semitendinosus
semimembranosus
biceps femoris long head
biceps femoris short head



LEFT THIGH

- dorsiflex, invert
foot & ankle
- extend toes

ANTERIOR COMPARTMENT OF LEG

tibialis anterior

extensor digitorum longus

extensor hallucis longus

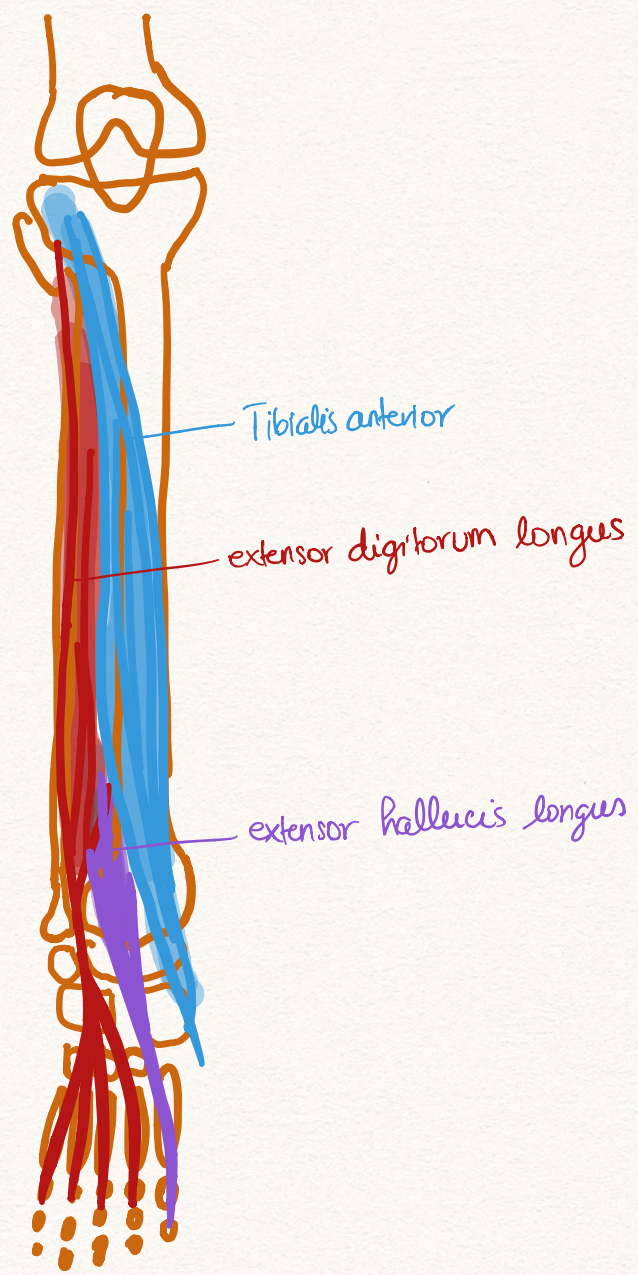
fibularis tertius ?

deep fibular nerve
L4, L5

anterior tibial artery

Deep Fibular Nerve
L4, L5

Anterior tibial artery

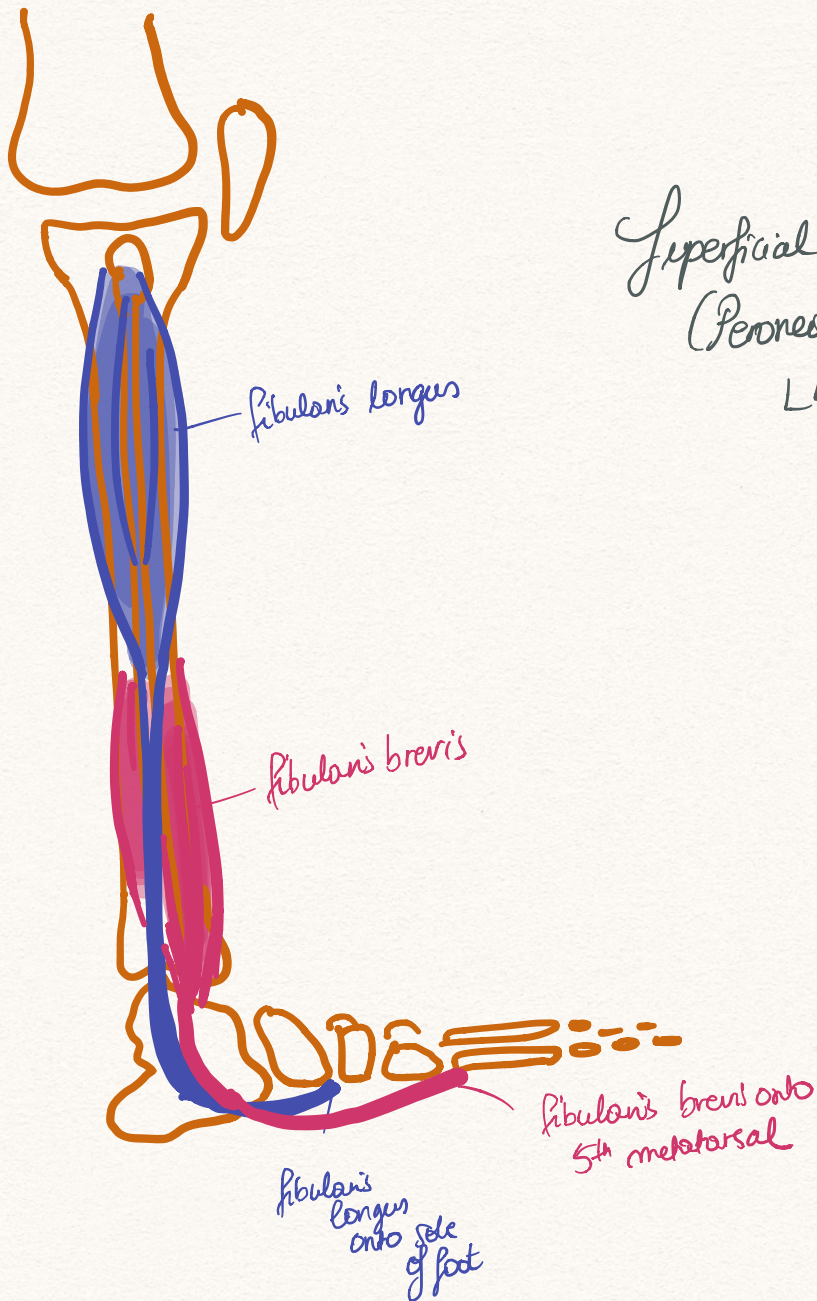


LATERAL COMPARTMENT OF LEG

eversion of foot

fibularis longus

fibularis brevis



Superficial Fibular
(Peroneal Nerve)

L4-S2

Fibularis longus

Fibularis brevis

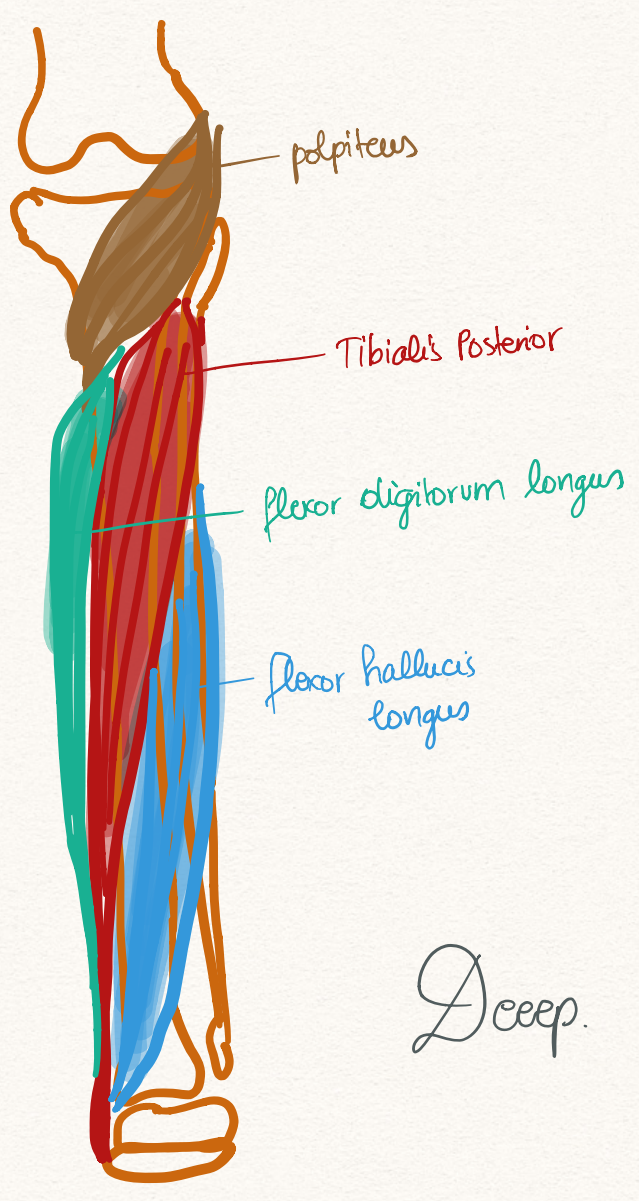
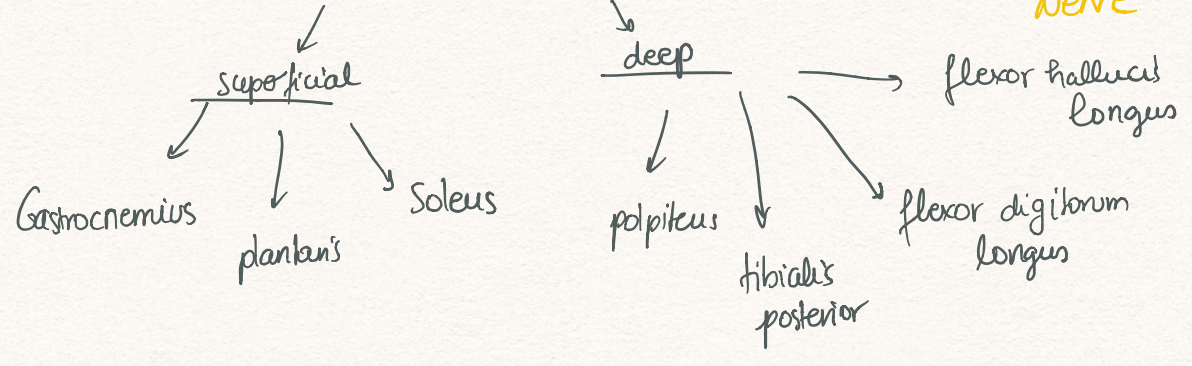
Fibularis brevis onto 5th metatarsal

Fibularis longus onto sole of foot

plantarflex
evert
foot

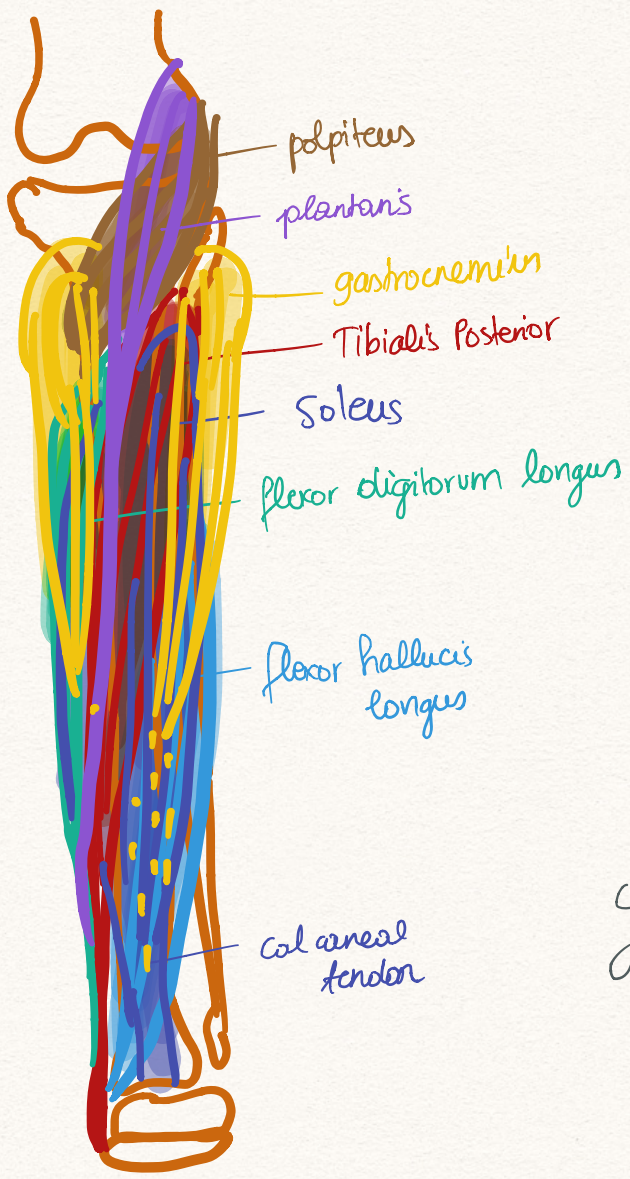
POSTERIOR COMPARTMENT OF LEG

Tibial Nerve



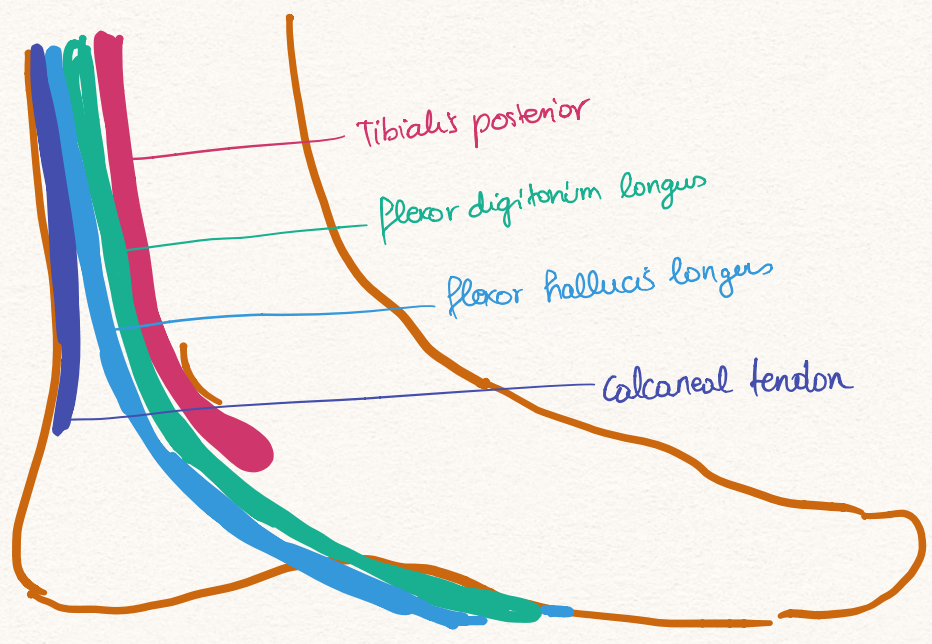
Tibial Nerve

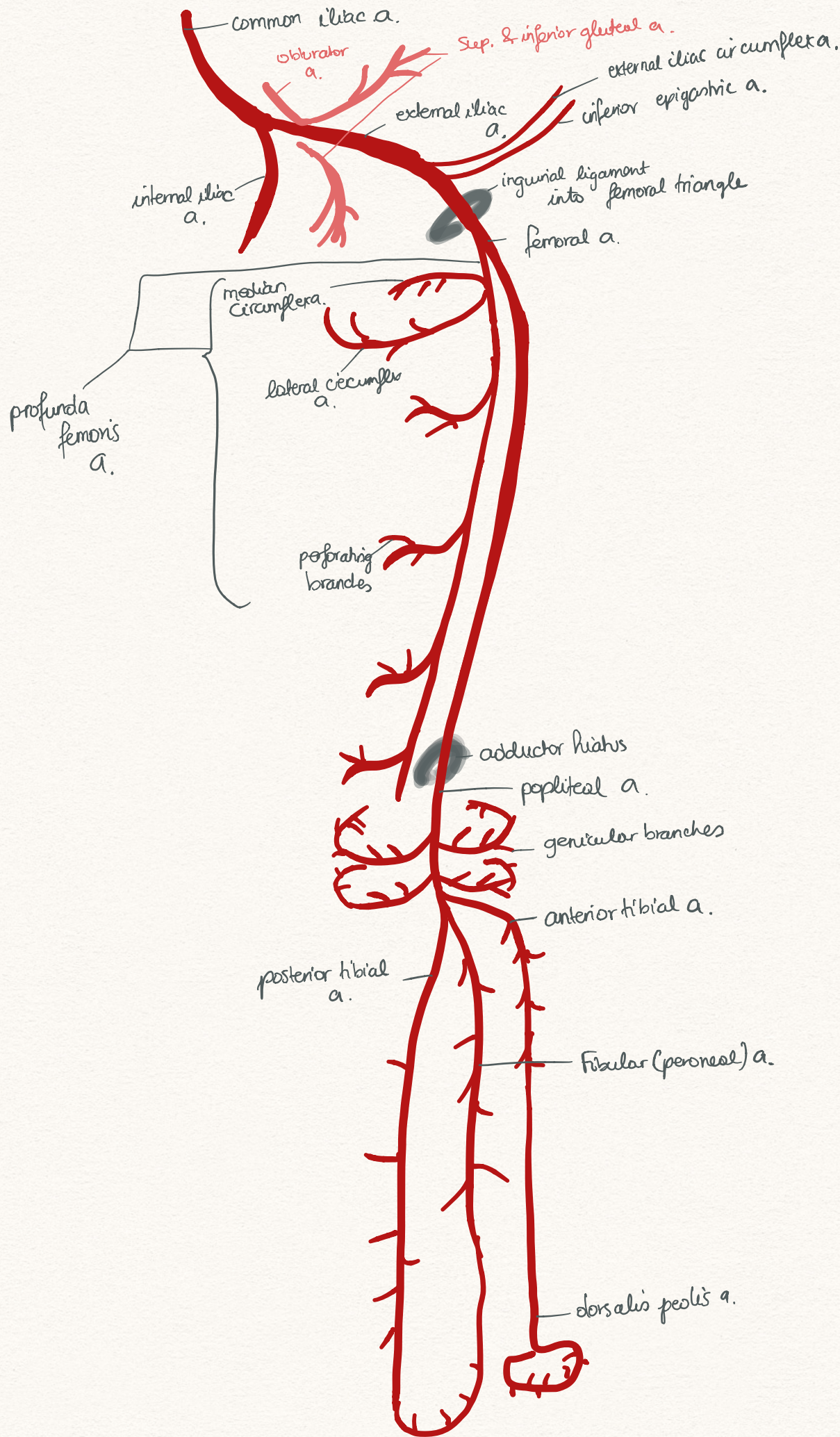
Deep.



Tibial Nerve

Superficial





ANTERIOR THIGH MUSCLES

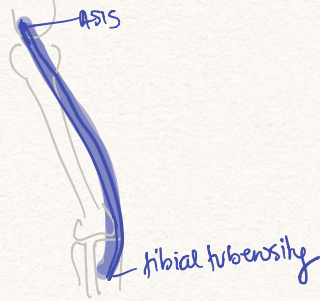
KNEE EXTENSION

FEMORAL NERVE

ALL



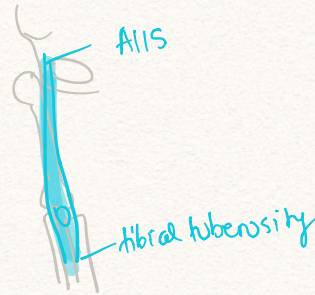
① SARTORIUS



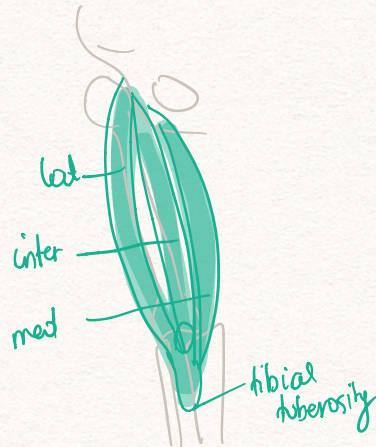
② PECTINEUS



RECTUS FEMORIS



VASTUS LATERALIS



VASTUS INTERMEDIUS

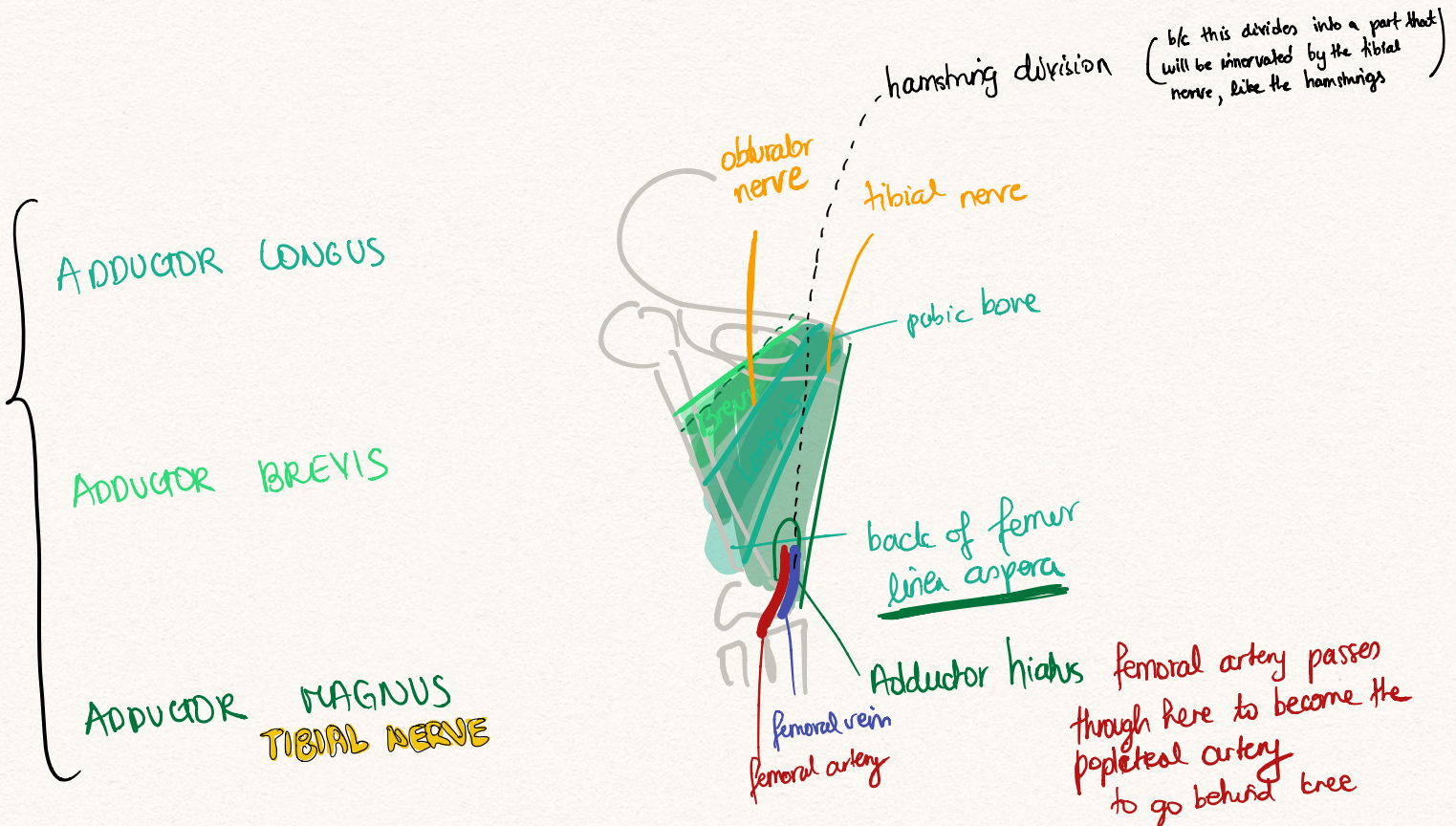
VASTUS MEDIALIS

③ QUADRICEPS
* L4

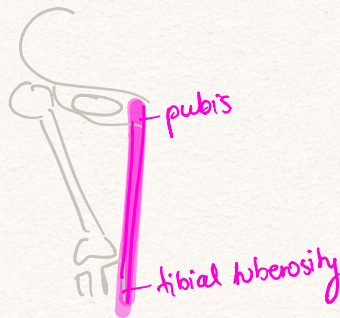
MEDIAL THIGH MUSCLES

HELP ADDUCTION

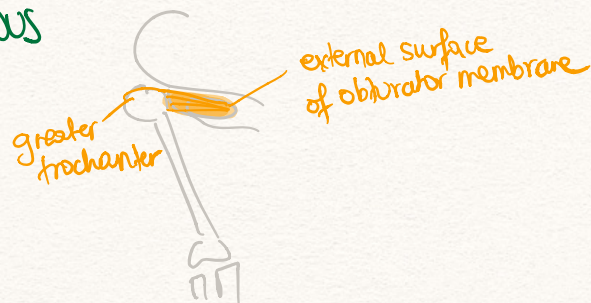
OBTURATOR NERVE



GRACILIS
slender



OBTURATOR EXTERNUS



POSTERIOR THIGH MUSCLES

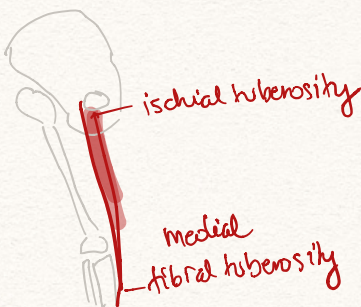
KNEE FLEXION
EXTENDS HIP

L4
L5*
S1*
S2
S3



TIBIAL NERVE

SEMITENDINOSUS

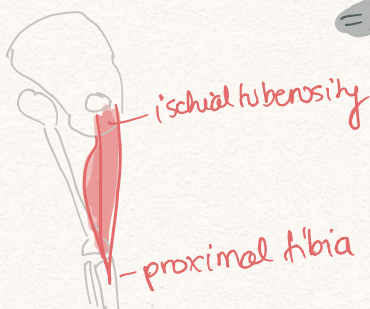


{ - gracilis
- sartorius
- semitendinosus } Pes anserinus
(foot of duck)

SARTorius Femoral n.
Gracilis Obturator n.
semiTendinosus Tibial n.

= SERGEANT FOOT

SEMI MEMBRANOSUS



BICEPS FEMORIS

COMMON FIBULAR NERVE

Short head
linea aspera

Head of fibula

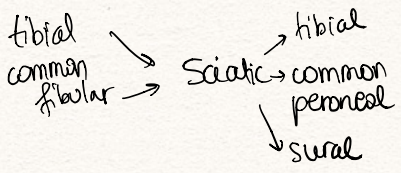
long head
ischial tuberosity

TIBIAL NERVE

* not really a hamstring muscle

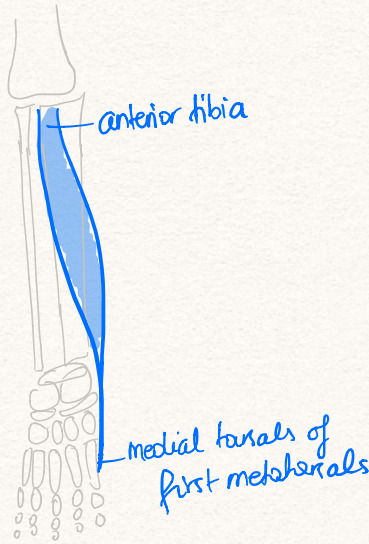
ANTERIOR COMPARTMENT OF LEG = SHIN

DORSI FLEXION

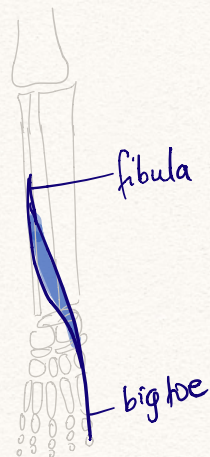


DEEP PERONEAL NERVE

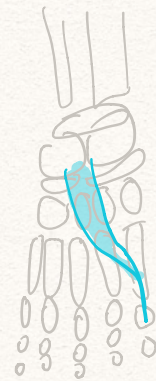
TIBIUS ANTERIOR



EXTENSOR HALLUCIS LONGUS



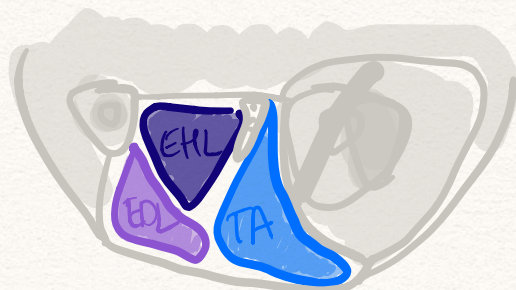
EXTENSOR HALLUCIS BREVIS



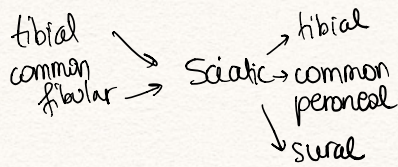
EXTENSOR DIGITORUM LONGUS



EXTENSOR DIGITORUM BREVIS



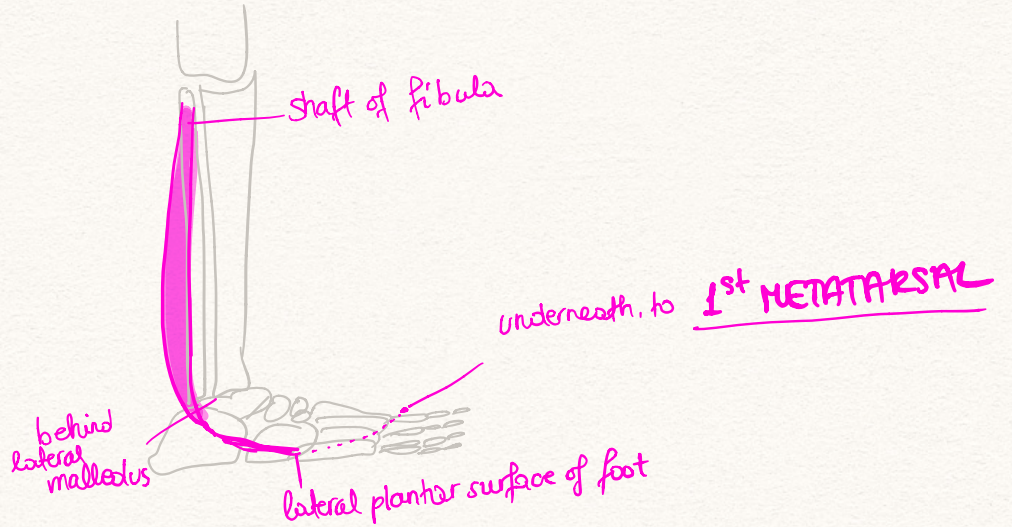
LATERAL COMPARTMENT OF LEG



SUPERFICIAL PERONEAL NERVE

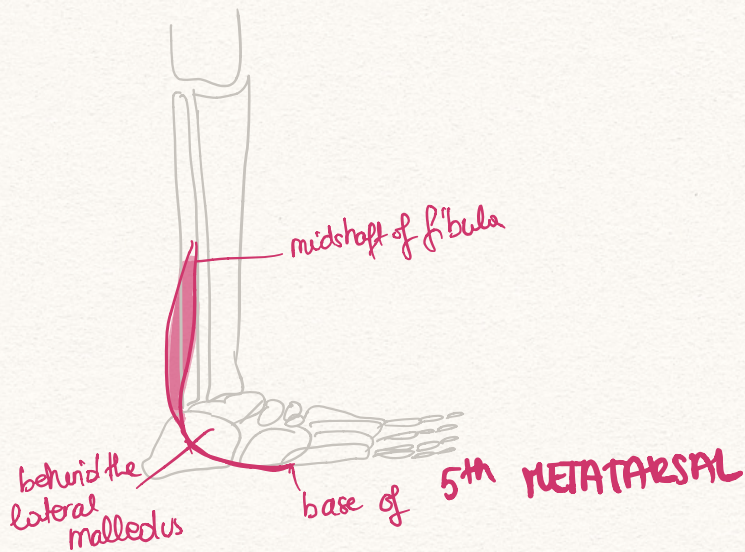
PERONEUS/ FIBULARIS LONGUS

- plantar flexion
- eversion



PERONEUS/ FIBULARIS BREVIS

- eversion
- plantar flexion



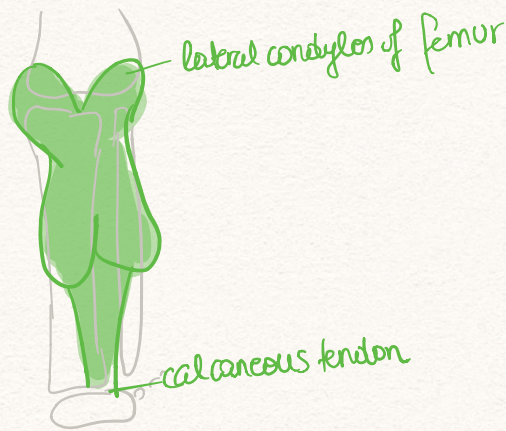
POSTERIOR COMPARTMENT OF LEG

— plantar flexion

TIBIAL NERVE

SUPERFICIAL

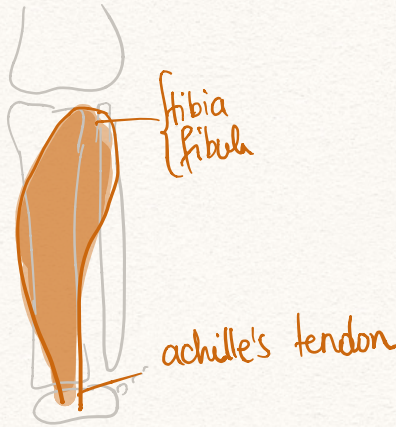
GASTROCNEMIUS



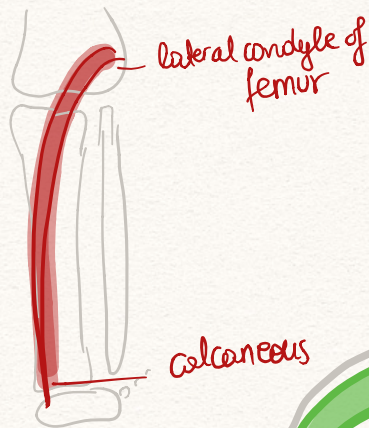
TRICEPS SUR1 (leg)

Strong plantar flexors

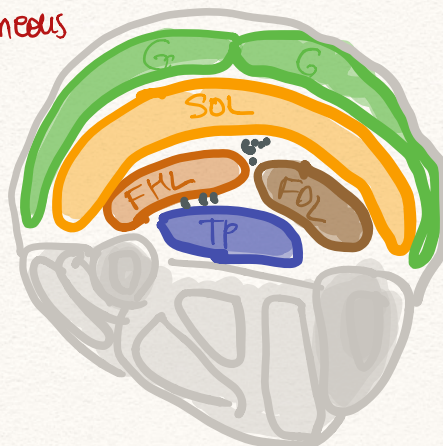
SOLEUS



PLANTARIS



"The freshman nerve"
looks like a nerve but it's not



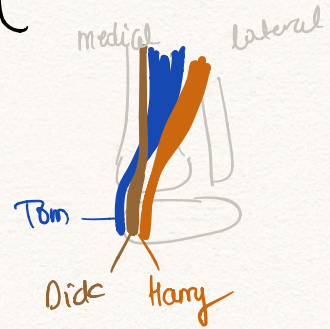
POSTERIOR COMPARTMENT OF LEG

DEEP

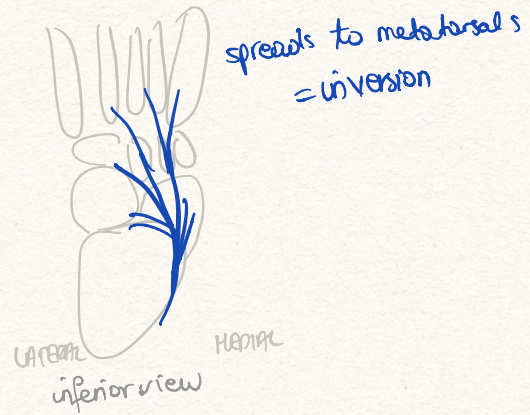
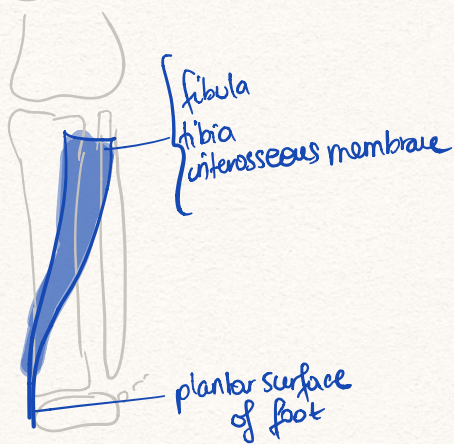
POLYPTHEUS



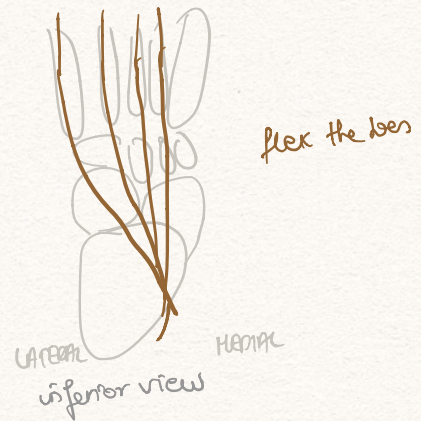
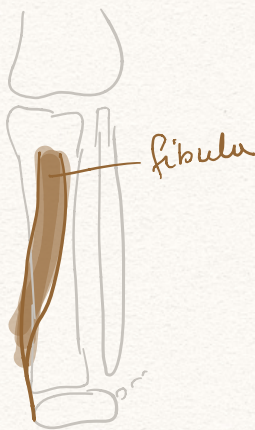
TIBIALIS POSTERIOR **TOM**
 FLEXOR DIGITORUM LONGUS **DICK**
 FLEXOR HALUCIS LONGUS **HARRY**



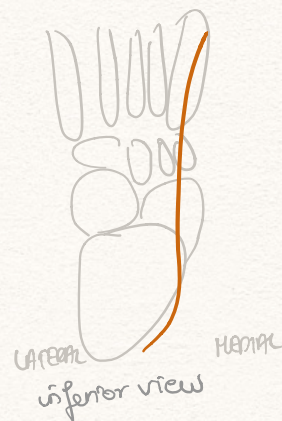
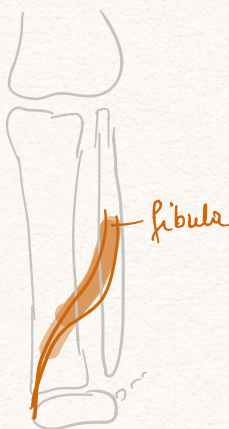
TIBIALIS POSTERIOR
 - plantar flexion
 - inversion



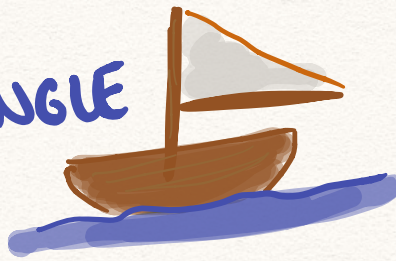
FLEXOR DIGITORUM LONGUS



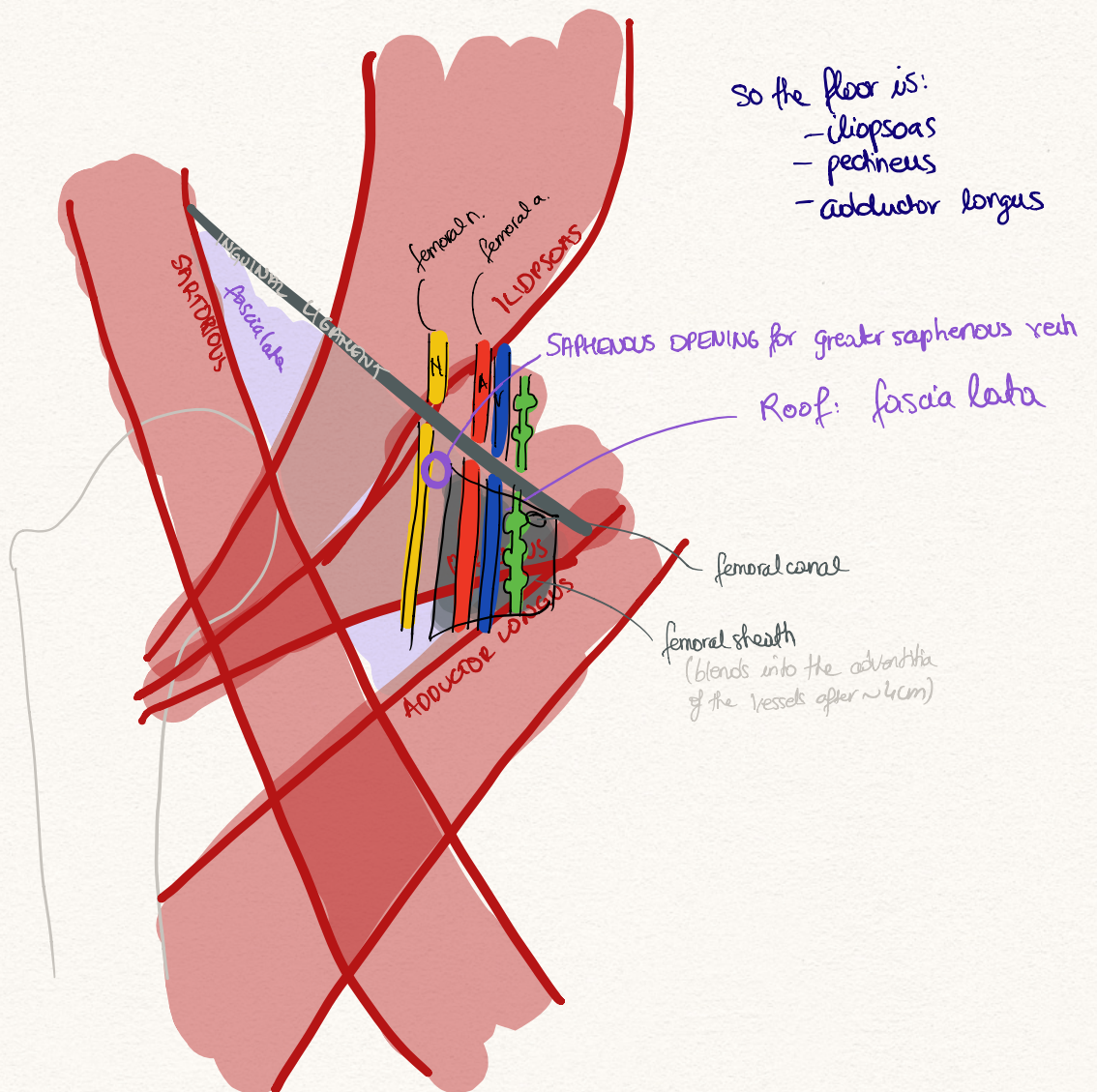
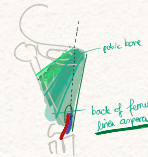
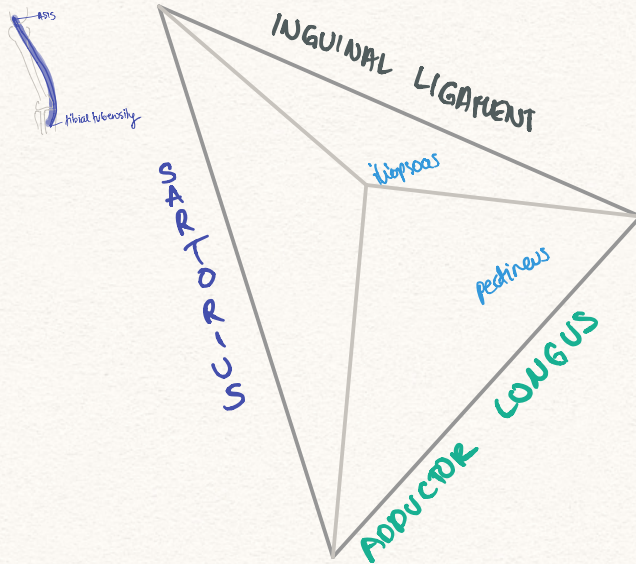
FLEXOR HALUCIS LONGUS



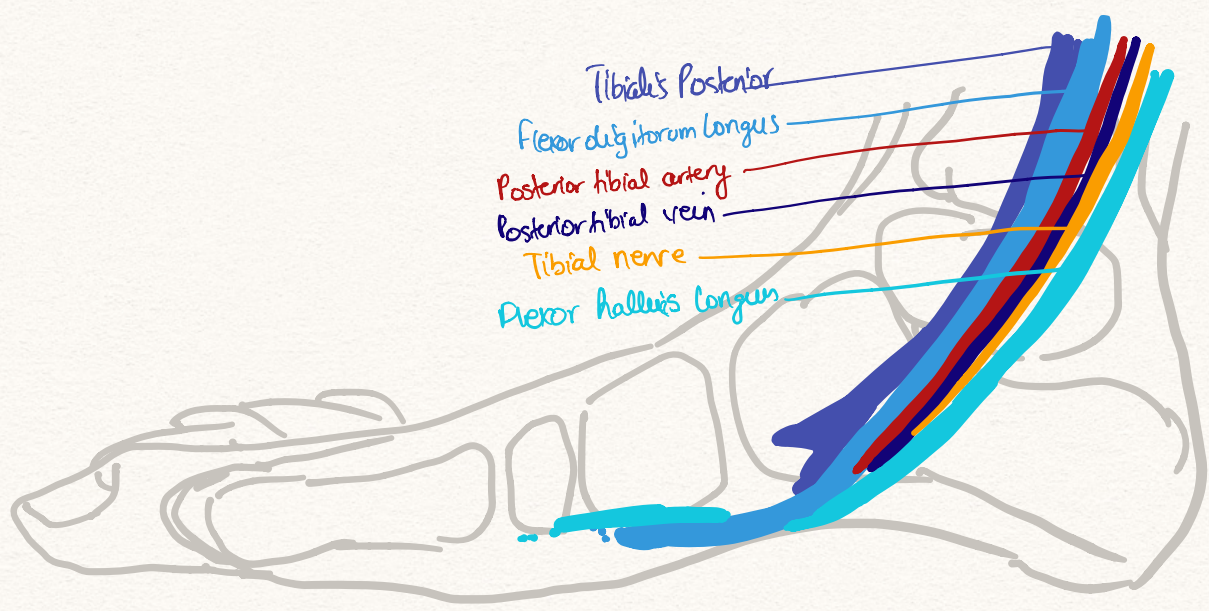
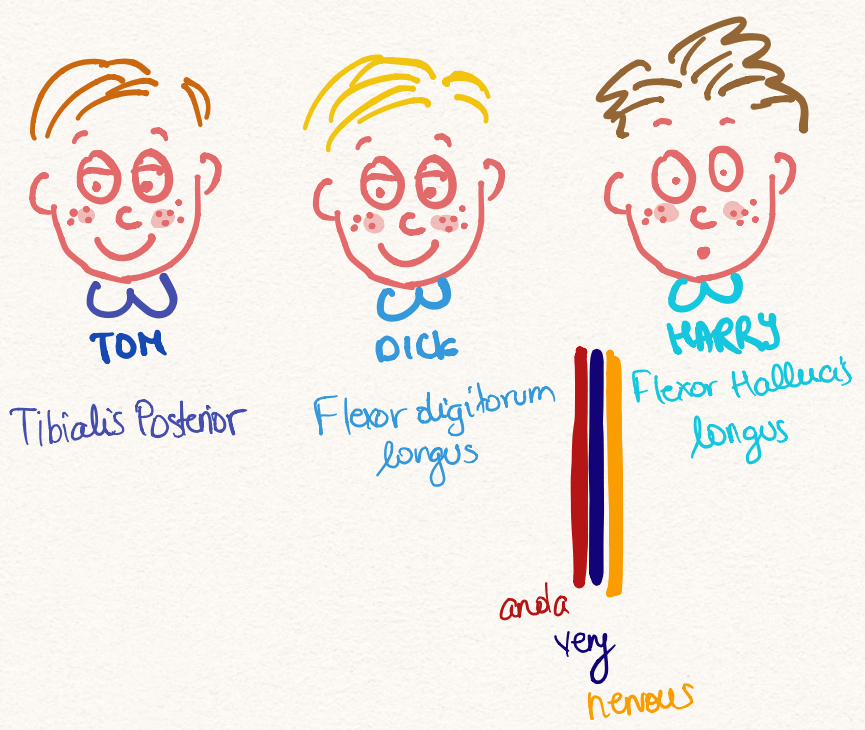
ANCHOR FEMORAL TRIANGLE



Sartorius
Adductor longus
Ligament
Ligament



TARSAL TUNNEL



CLINICAL CONSIDERATIONS - HIP



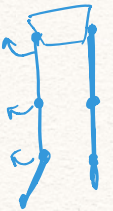
① ACETABULAR FRACTURES

- high Energy motor vehicle accidents / falls when the femur smashes into the acetabulum
- anterior rim: iliopectic
- posterior rim: ilioischial

② DISLOCATIONS OF HIP JOINT

↑ ANTERIOR

- causes lateral rotation of hip due to sole action of those muscles
- may become cyanotic due to femoral artery damage



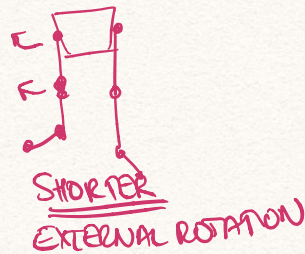
↓ POSTERIOR * more common

- causes medial rotation of hip due to sole action of those muscles
- avascular necrosis of femoral head of circumflex a. or compromised
- *Sciatic nerve may be damaged



③ FEMORAL HEAD FRACTURE ♀

- avascular necrosis of circumflex a.
- more common in old women with osteoporosis



④ LEG-PERTHE'S DISEASE ♂

- circumflex a. start replacing the blood supply to head of femur
- Gradual AVASCULAR NECROSIS of head of femur
- idiopathic
- unilateral, caucasian boys with hip pain, slight limp, slight external rotation of hip joint

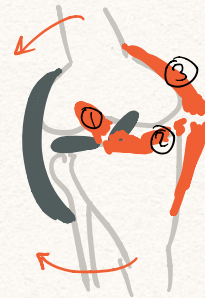


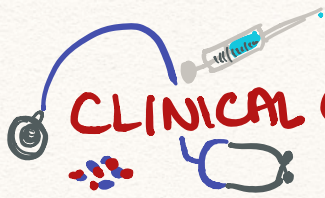
CLINICAL CONSIDERATIONS - KNEE

① TERRIBLE TRIAD

- anterior cruciate ligament
 - medial meniscus
 - medial collateral ligament
- } TORN

→ excessive abduction of knee joint





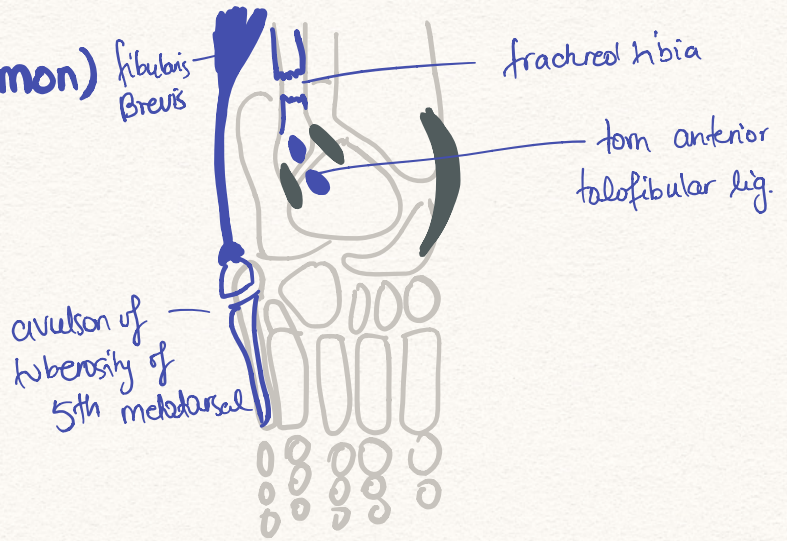
CLINICAL CONSIDERATIONS

- FOOT



① INVERSION INJURY (most common)

- 1) Fractured Tibia
- 2) Torn anterior talofibular lig.
- 3) avulsion of tuberosity of 5th metatarsal via fibularis Brevis muscle



② SKI BOOT INJURY

→ fracture of both distal

fibula
tibia



③ LOVE'S FRACTURE = CALCANEAL FRACTURE

- when you jump from a height onto your feet