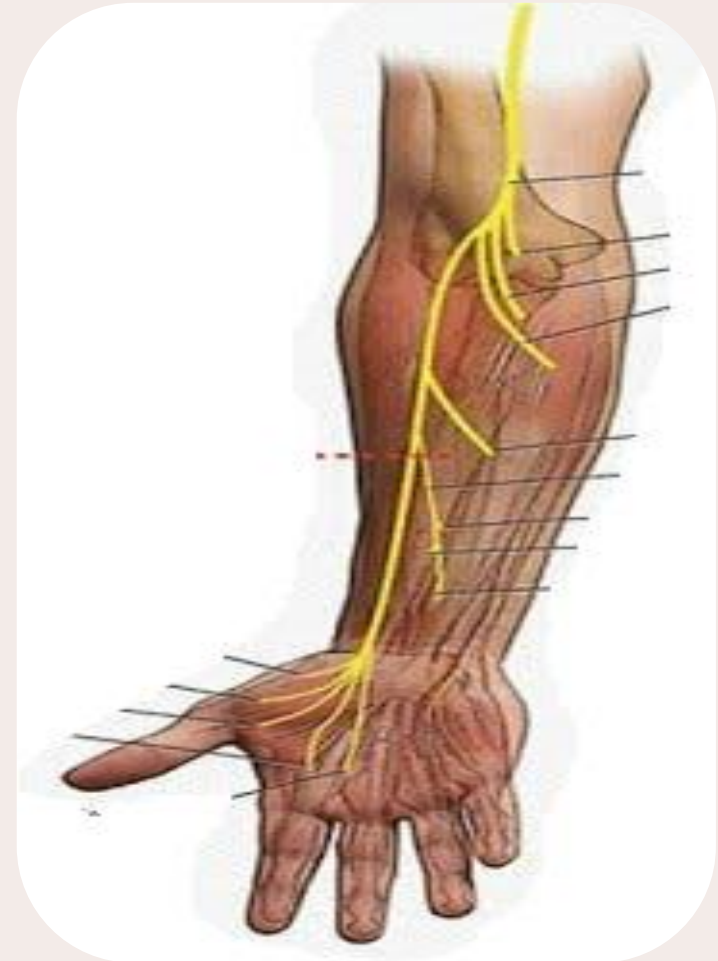


Clinical Application
of Acupotomy
Diagnosis and Treatment of
**Median Nerve Compression
with Acupuncture**

Mei Hung Lee Lai, PhD, LAc.
SBUEAA Webinar, January 21st, 2023



Median Nerve Palsy

How to examine the median nerve

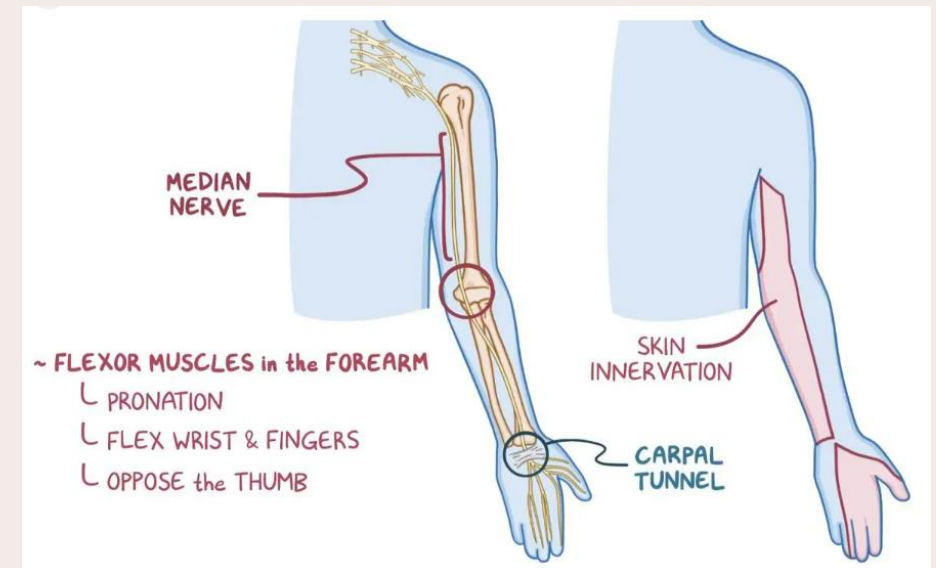
Median nerve palsy



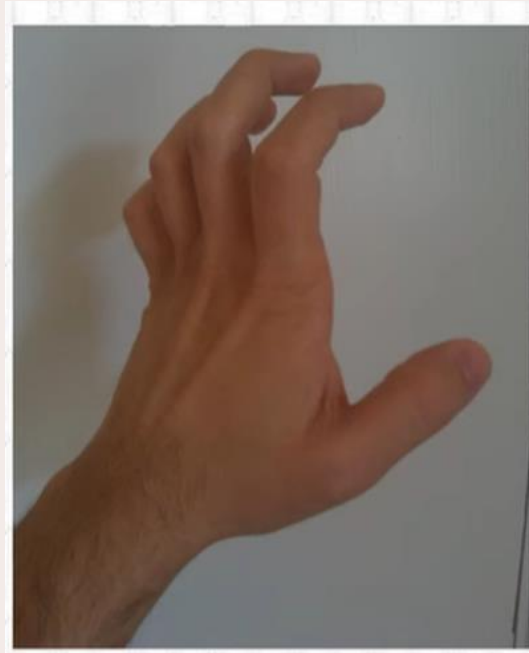
Paresthesia, numbness of the flexor muscles of the forearm, wrist, and fingers

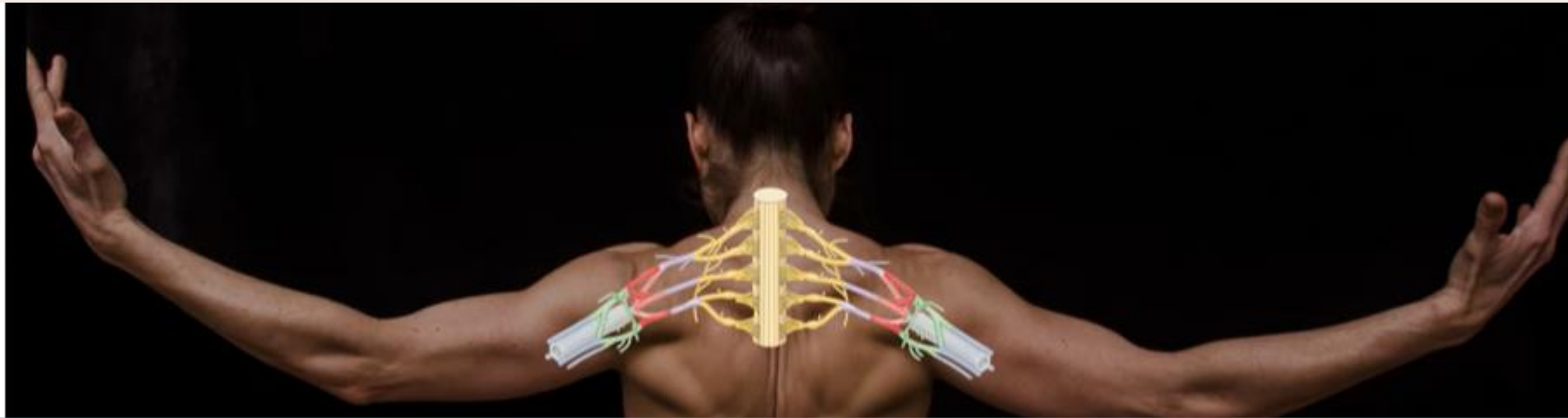


Carpal tunnel syndrome

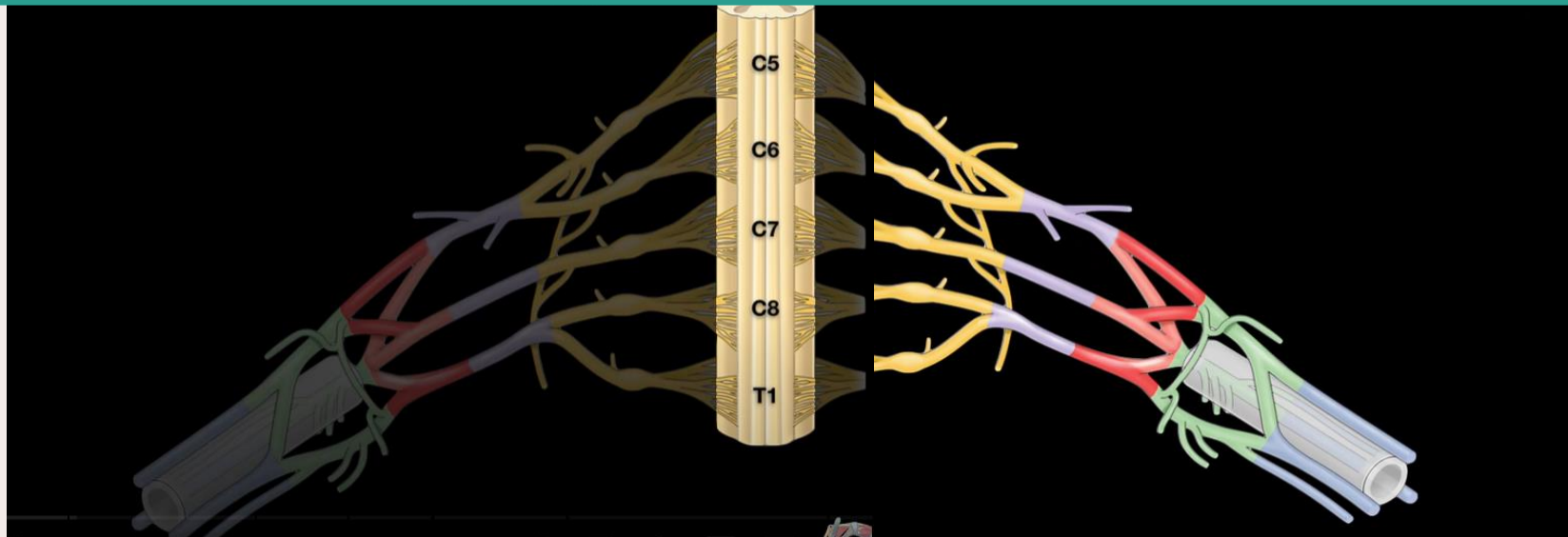


Median Nerve Palsy

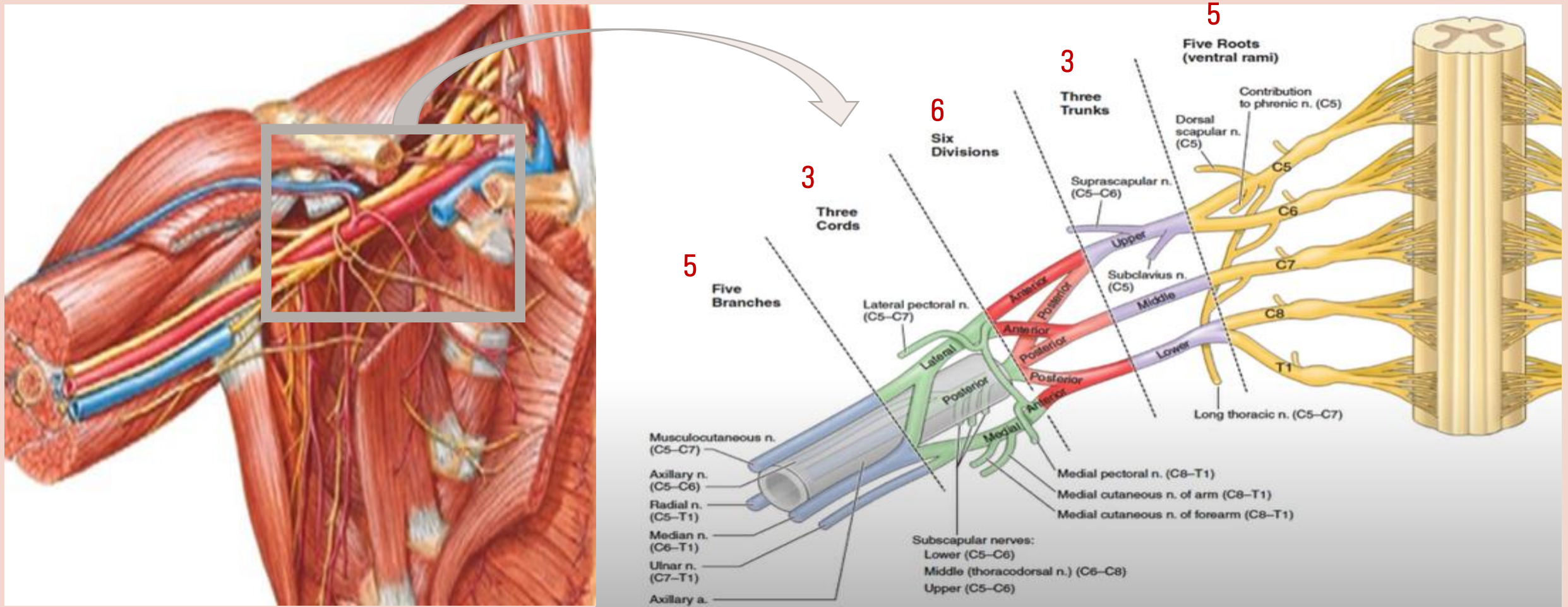




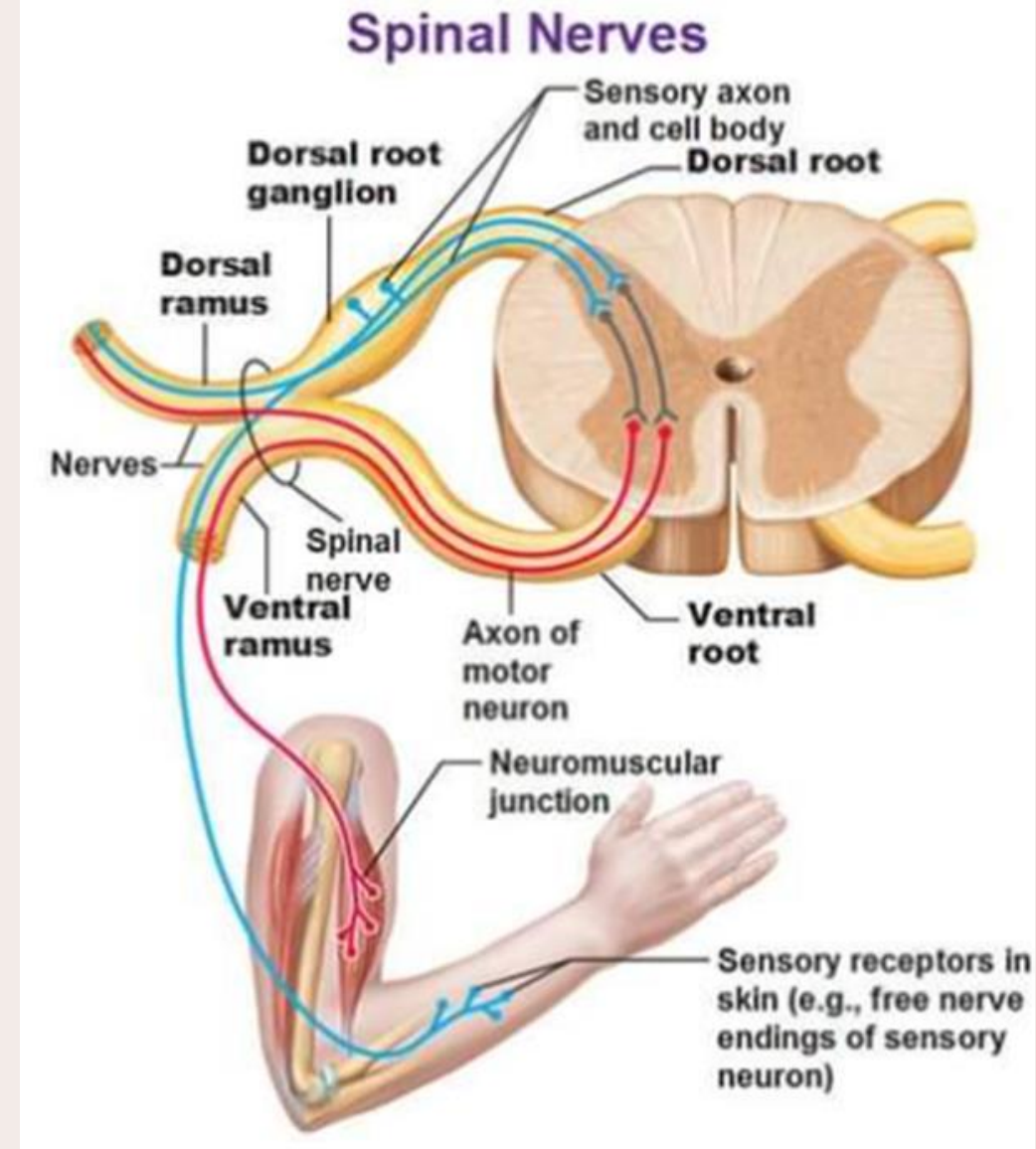
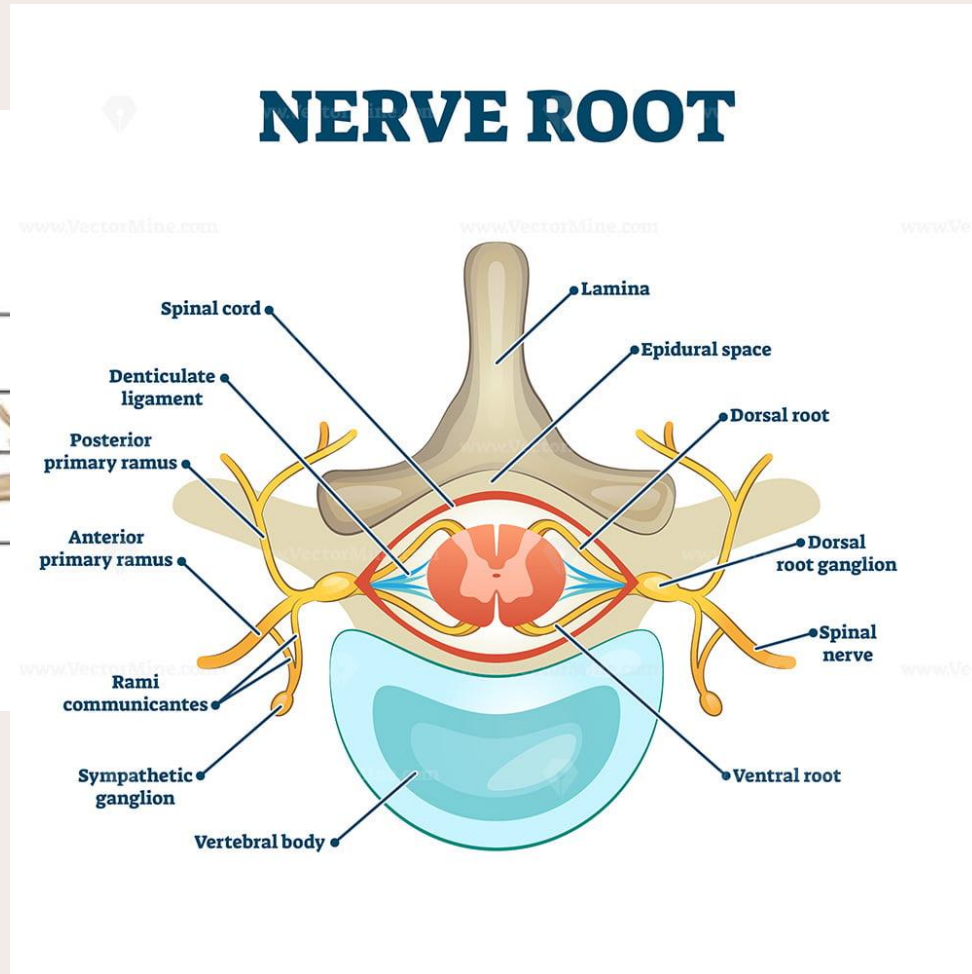
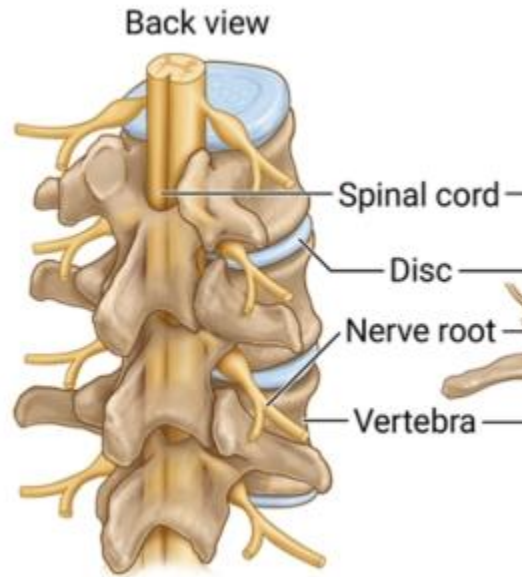
Brachial Plexus

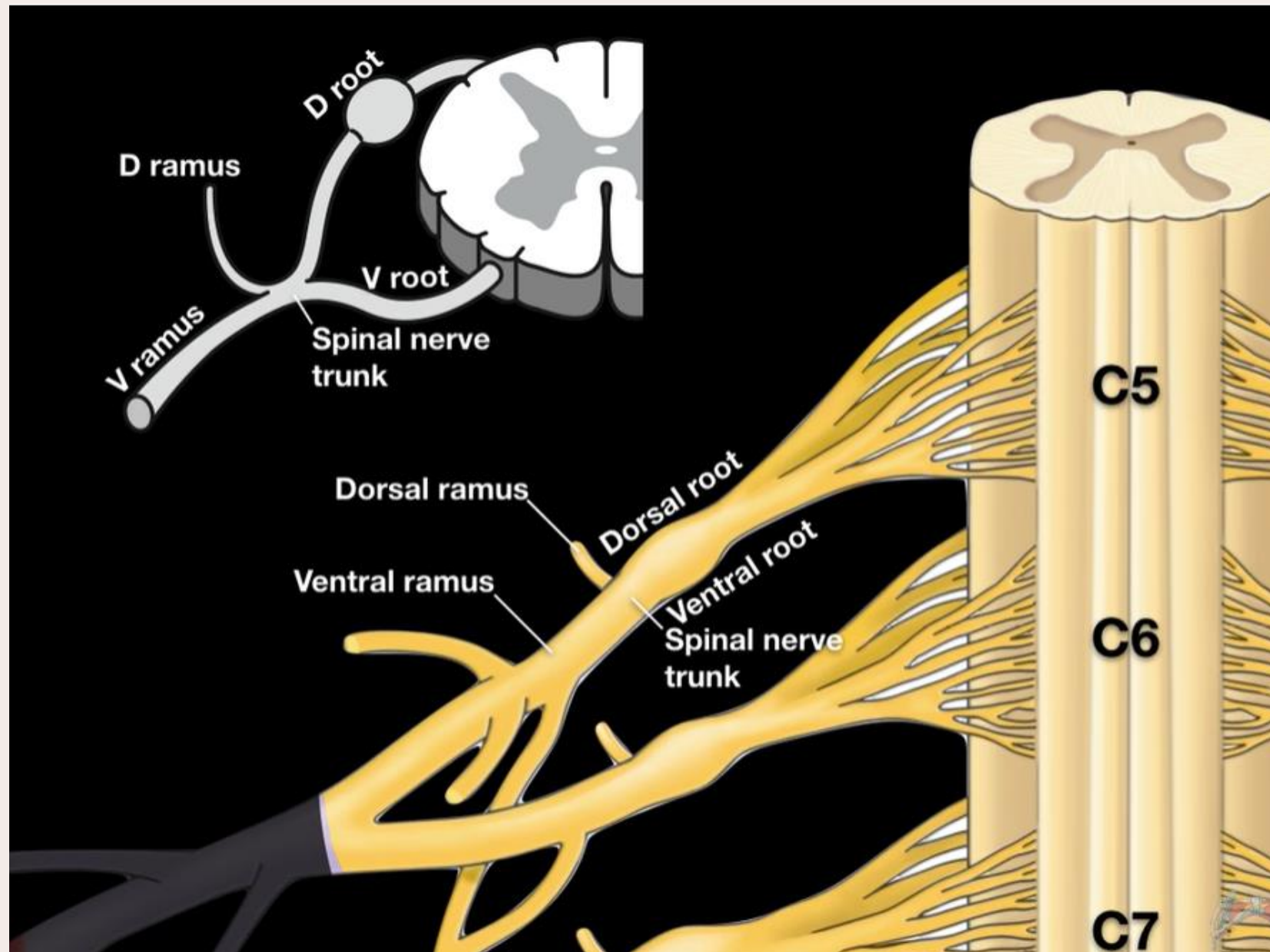


Brachial Plexus



Spinal Nerves

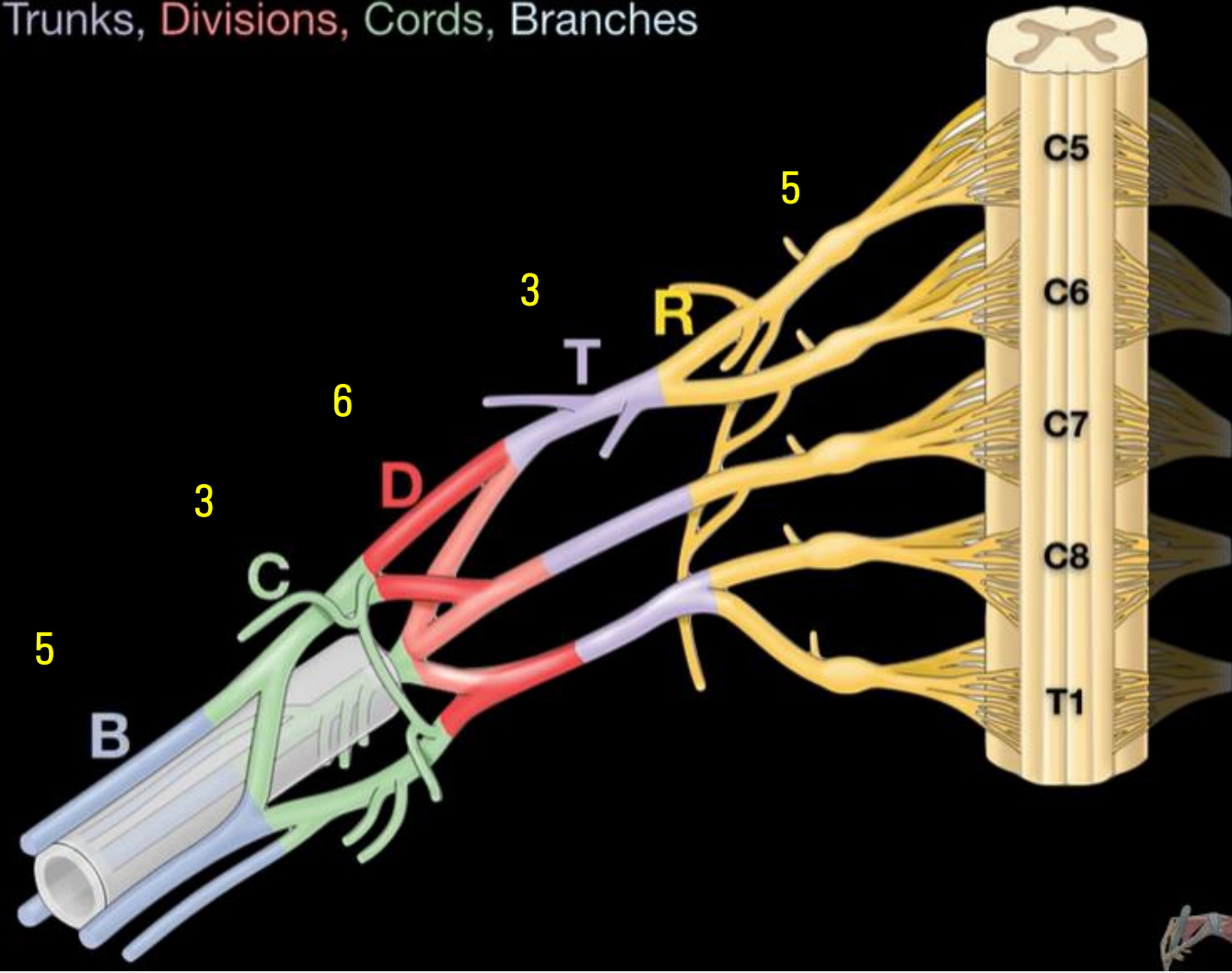




Brachial plexus
 The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

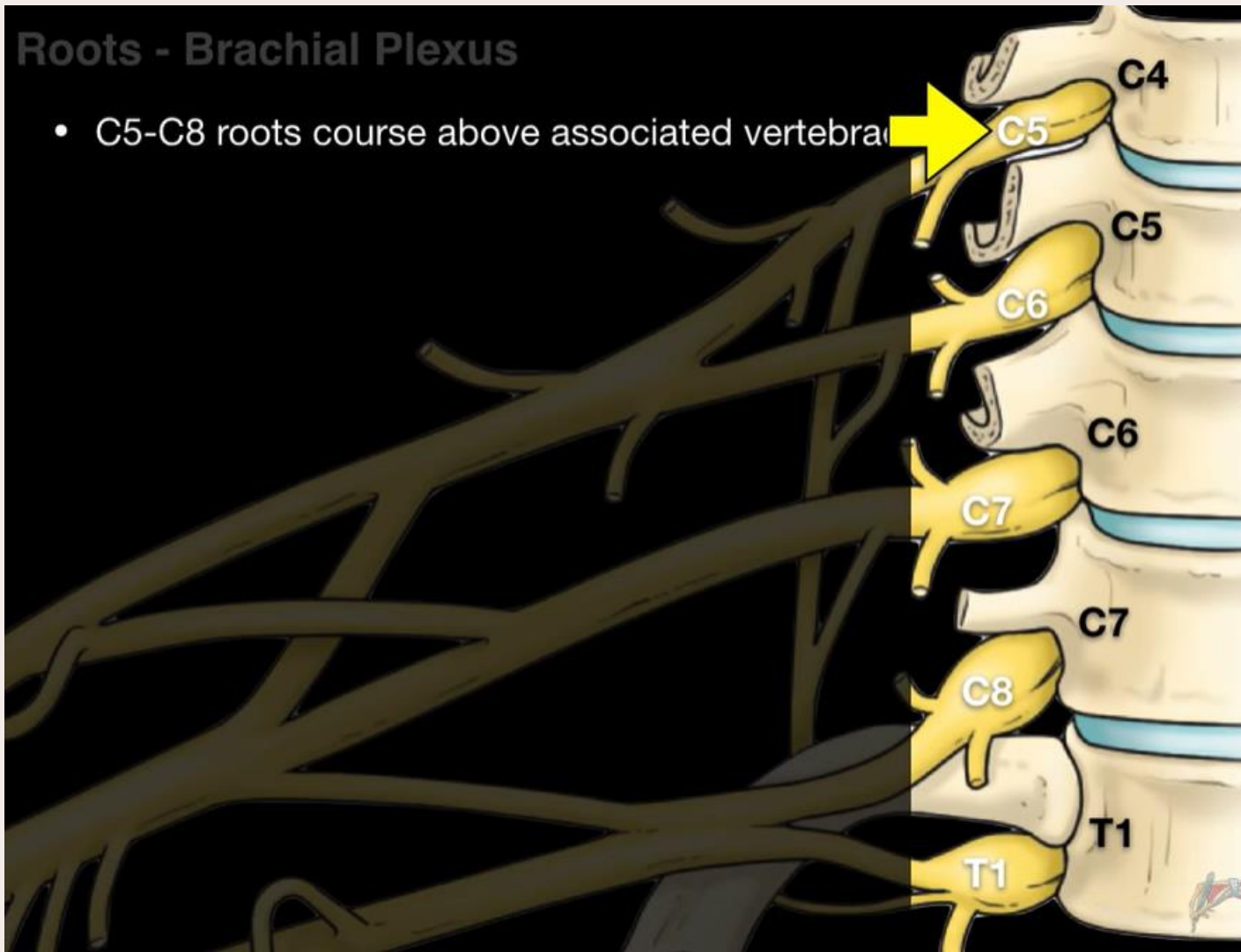
Brachial plexus

- **Roots**, **Trunks**, **Divisions**, **Cords**, **Branches**



Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Roots - Brachial Plexus



5 Roots

Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Roots - Brachial Plexus

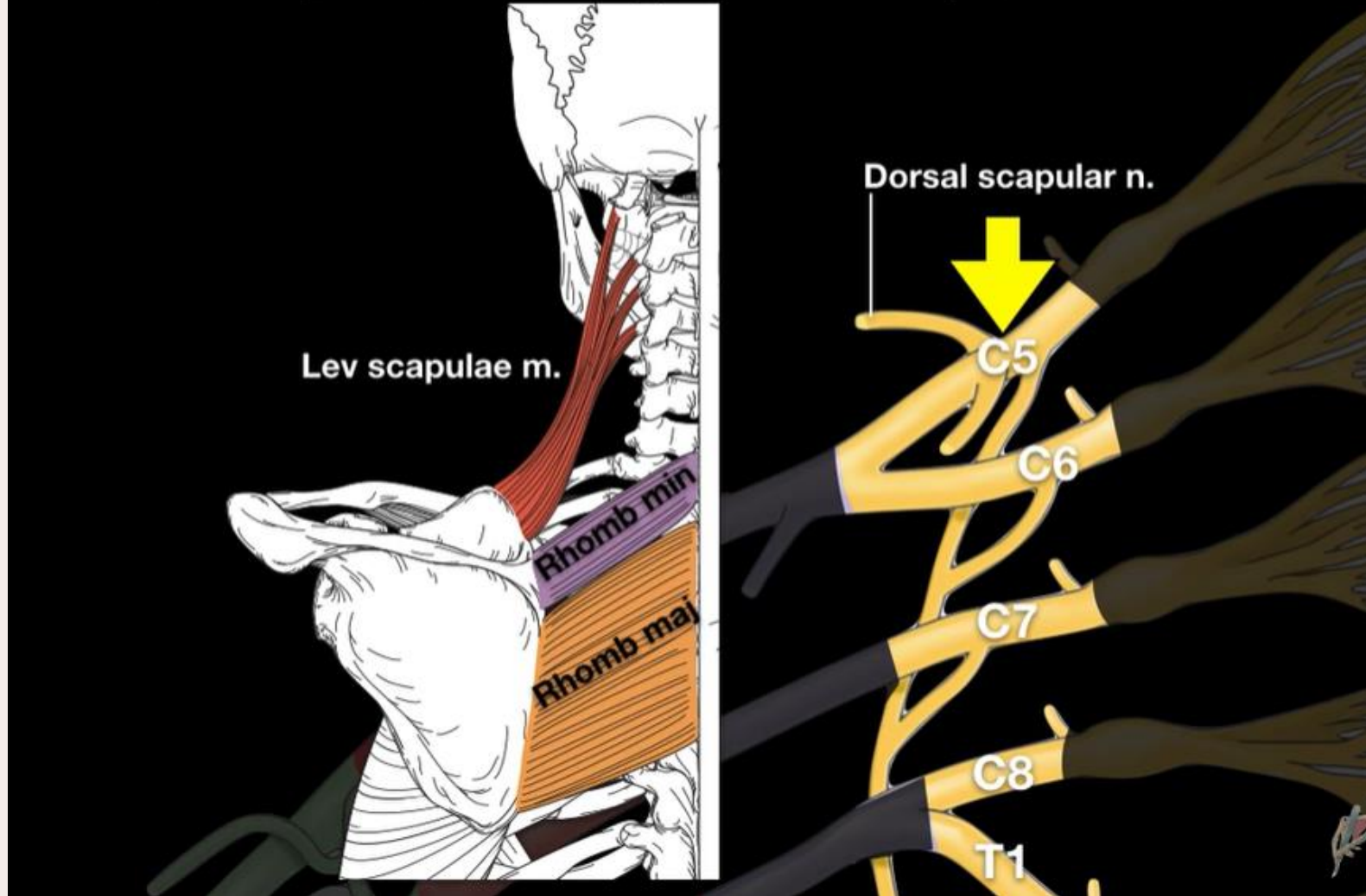
- C5-T1 ventral rami



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The noted Anatomist
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Roots - Brachial Plexus

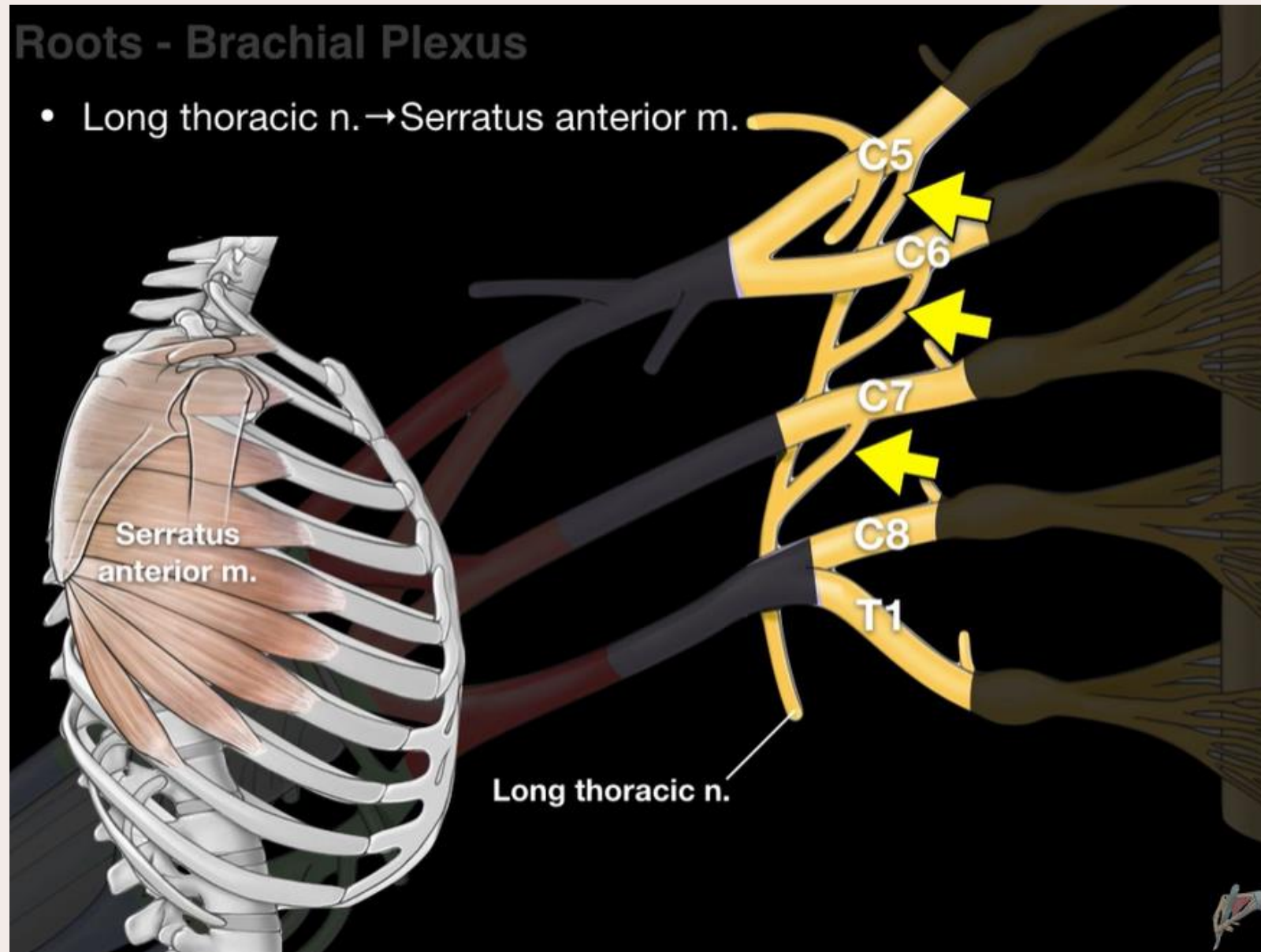
- Dorsal scapular n. → Lev scap, Rhomdoid Maj and Min mm.



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The noted Anatomist
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Roots - Brachial Plexus

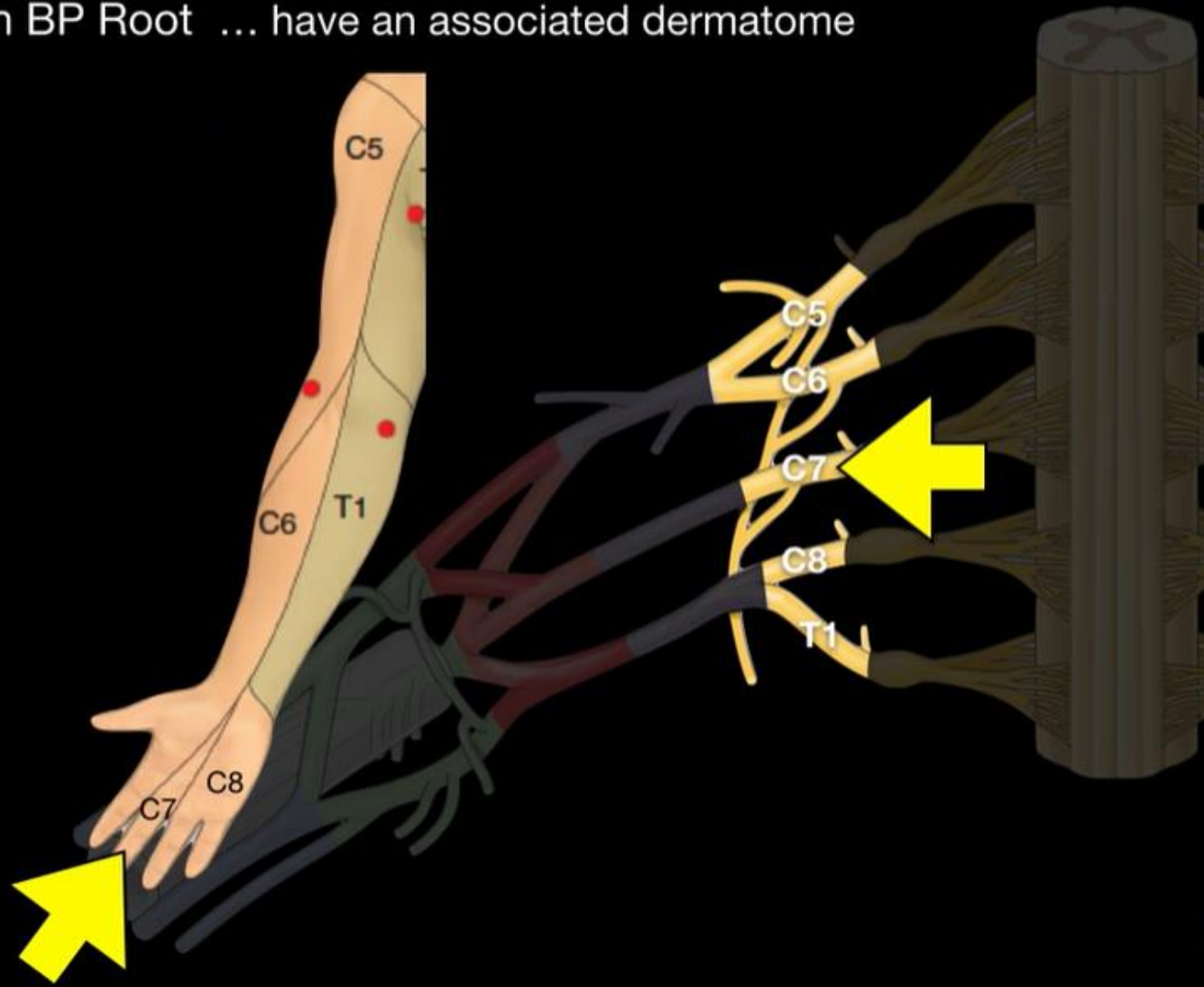
- Long thoracic n. → Serratus anterior m.



Brachial plexus
The noted Anatomist
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Roots - Brachial Plexus

- Each BP Root ... have an associated dermatome



Brachial plexus
The noted Anatomist
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Roots - Brachial Plexus

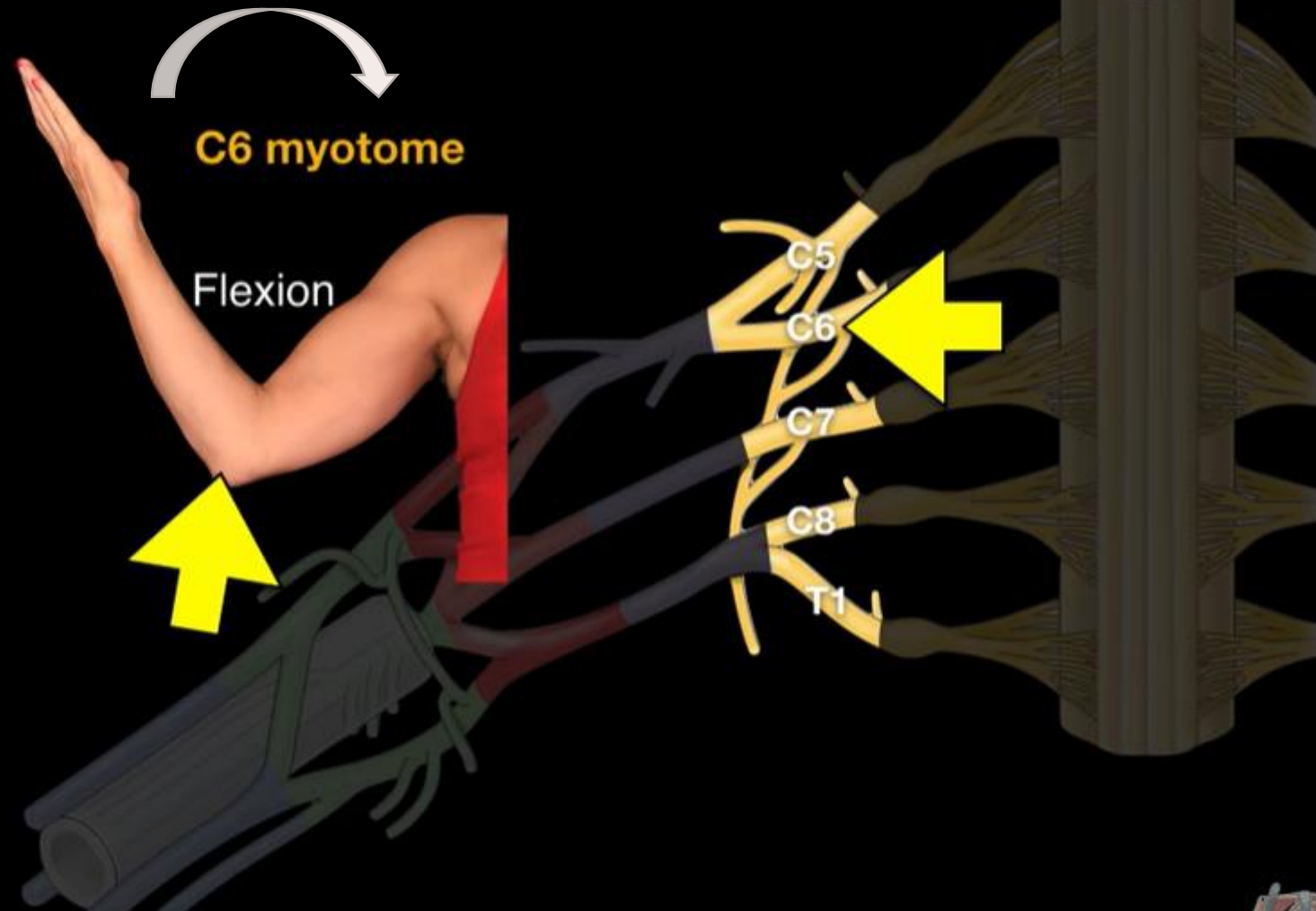
- Each BP Root ... have an associated myotome



Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Roots - Brachial Plexus

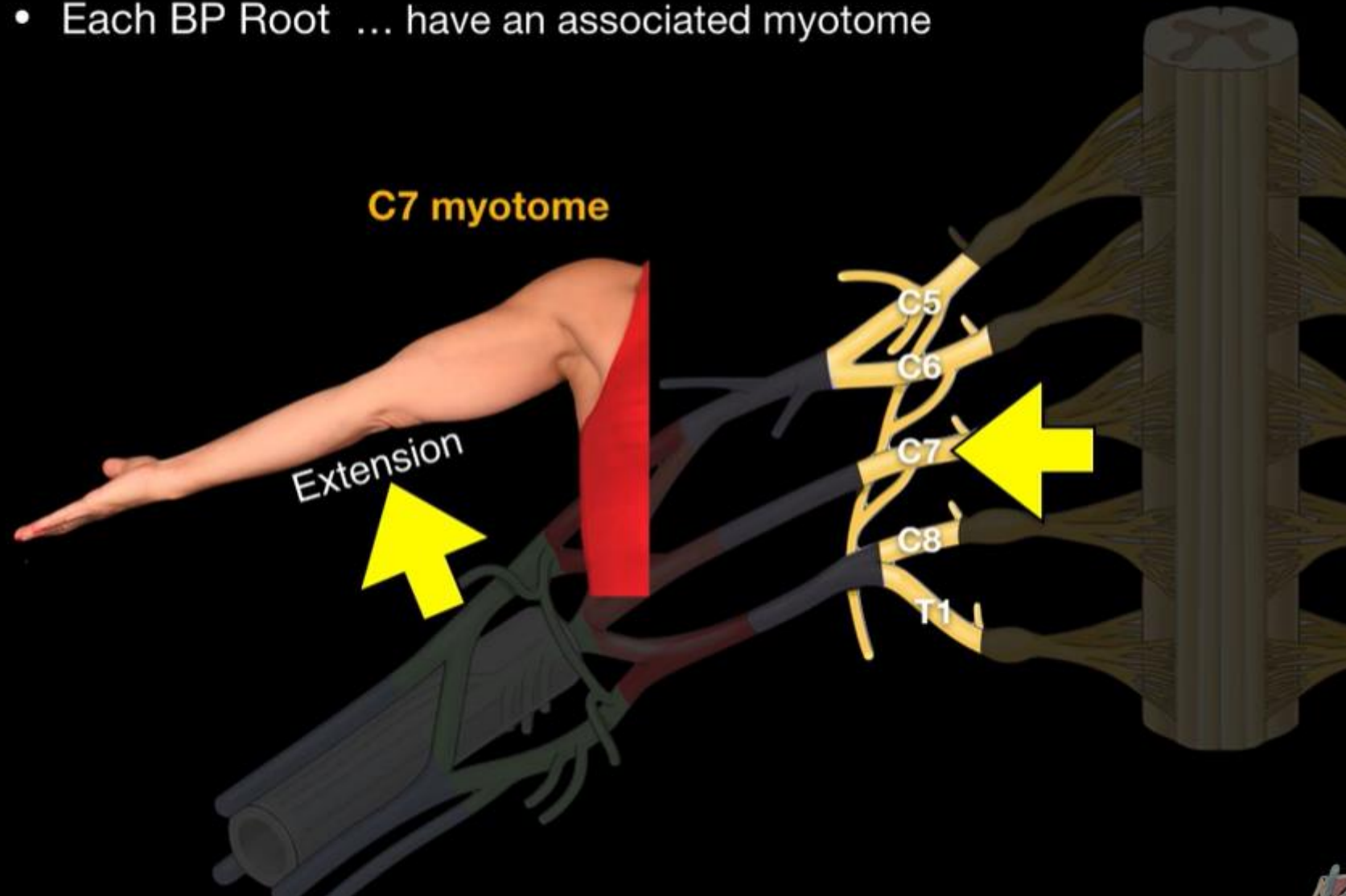
- Each BP Root ... have an associated myotome



Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Roots - Brachial Plexus

- Each BP Root ... have an associated myotome



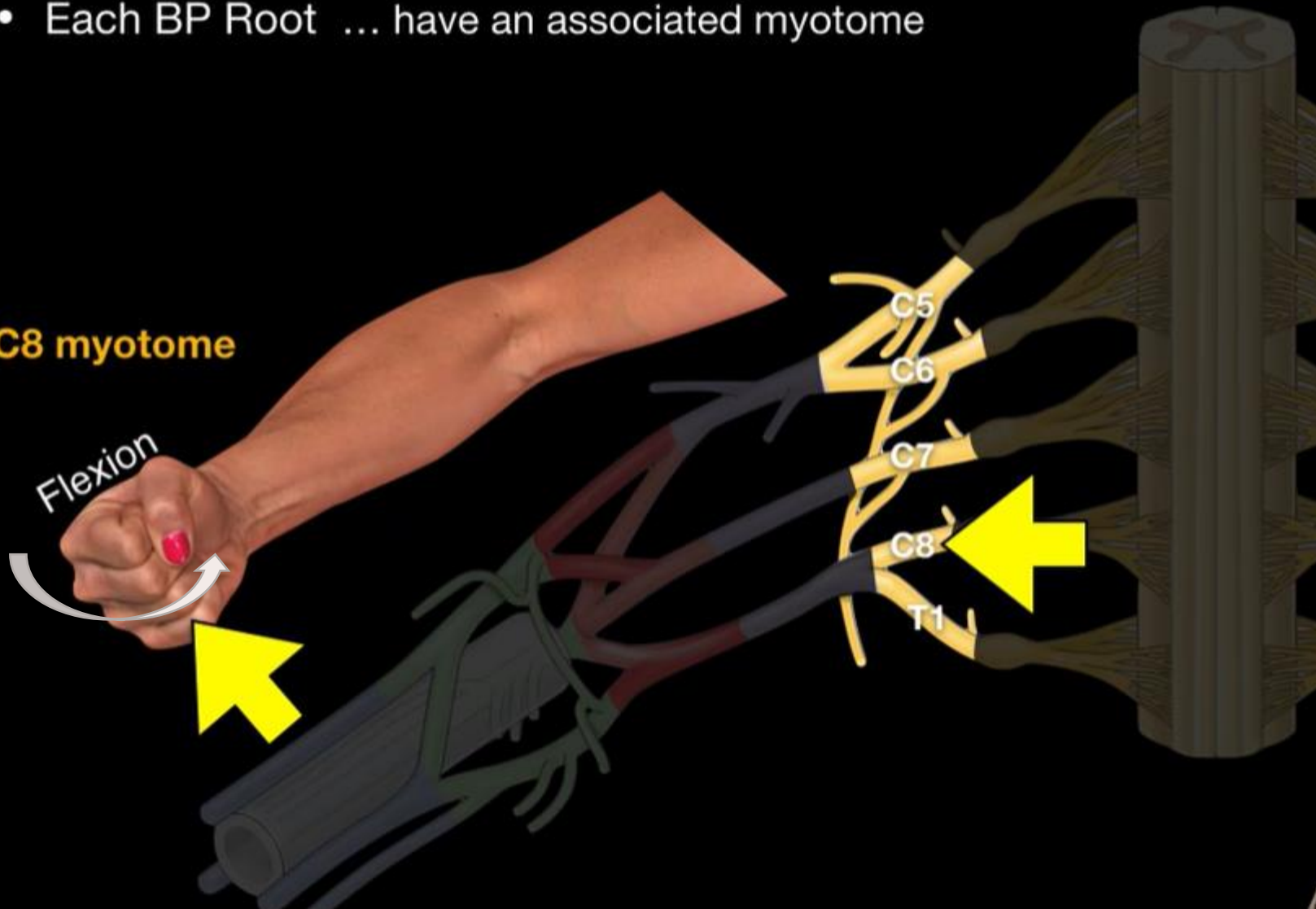
Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Roots - Brachial Plexus

- Each BP Root ... have an associated myotome

C8 myotome

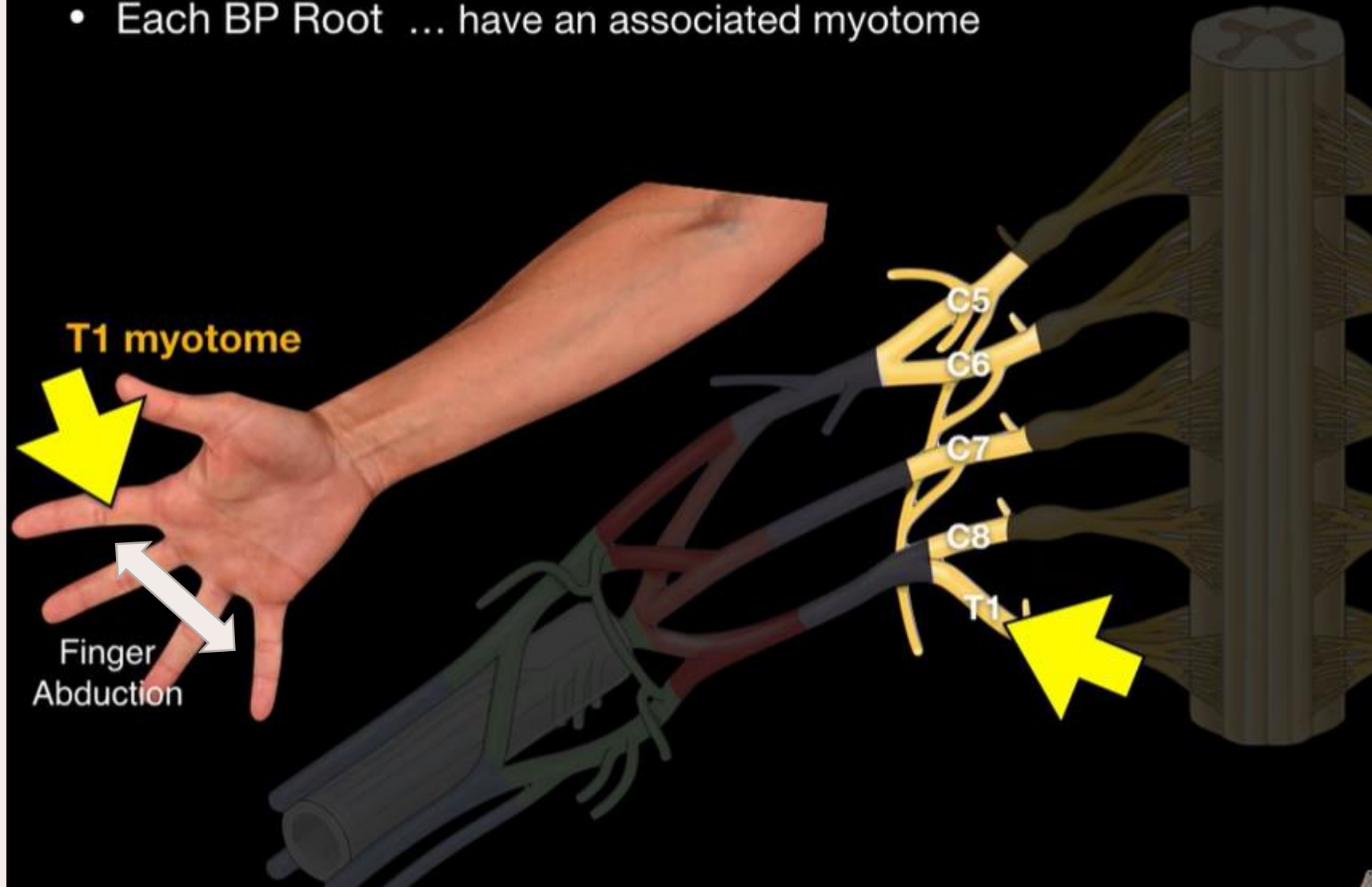
Flexion



Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Roots - Brachial Plexus

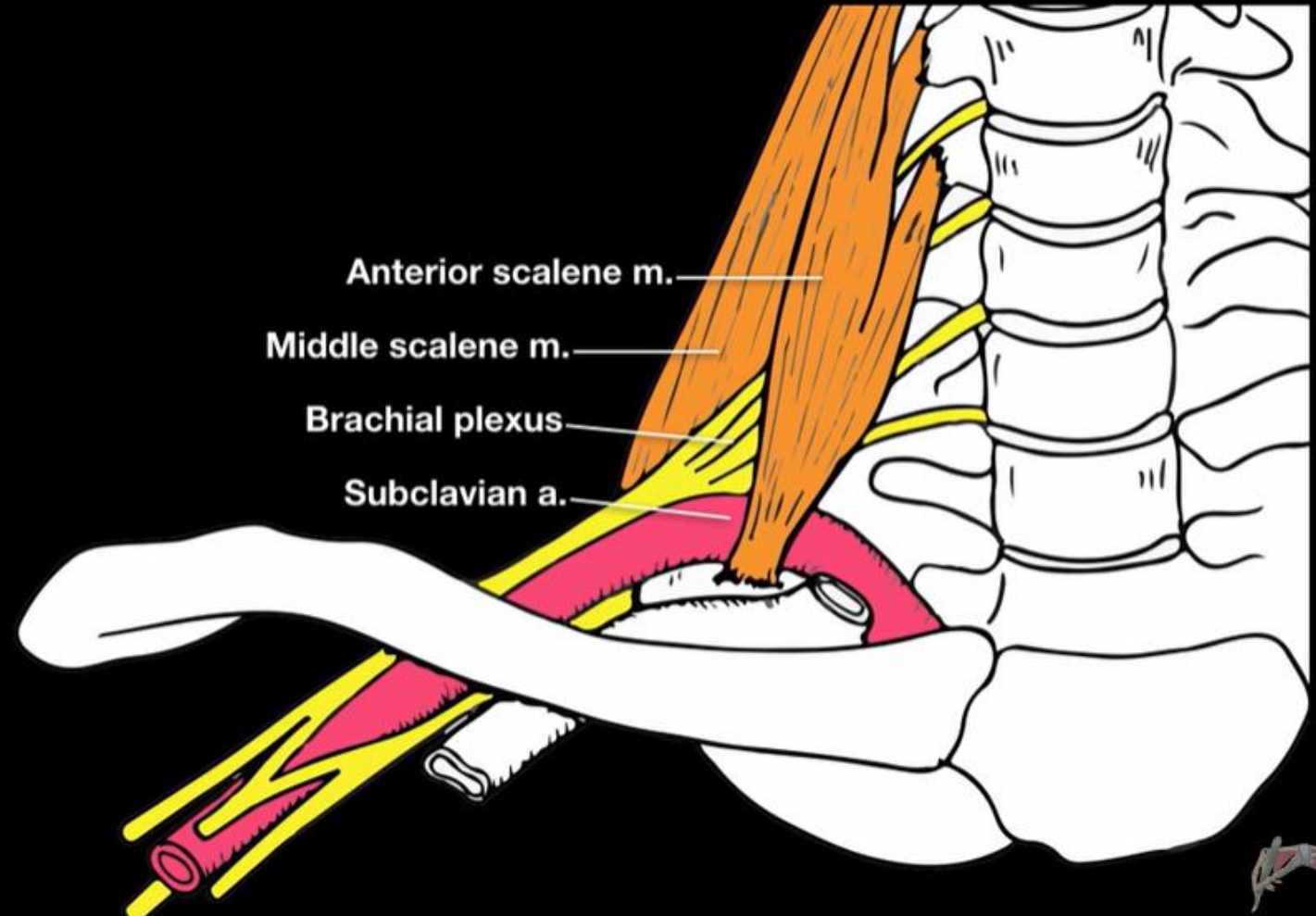
- Each BP Root ... have an associated myotome



Brachial plexus
The noted Anatomist
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Trunks - Brachial Plexus

- Roots/Trunks exit between ant & middle scalene muscles



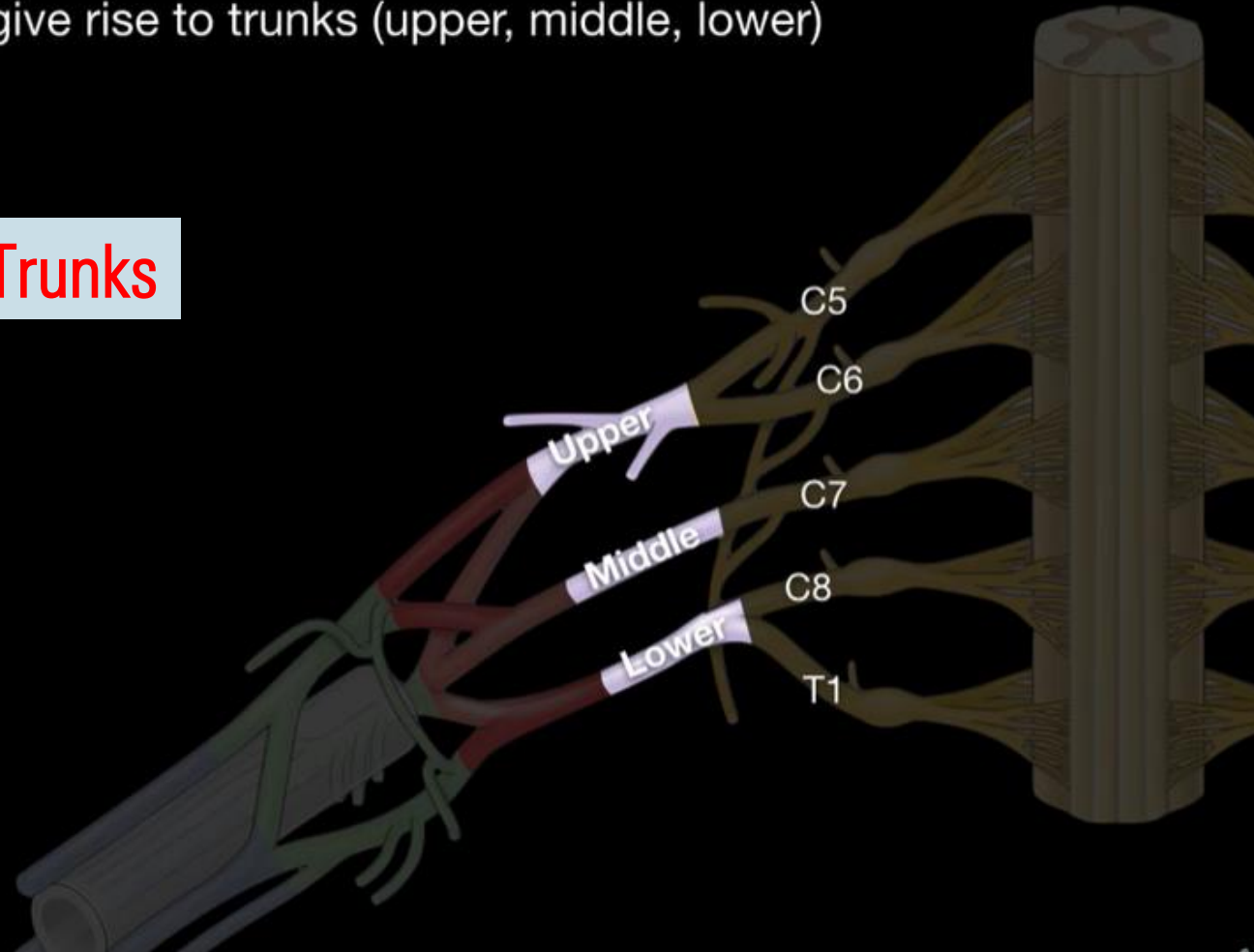
Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Trunks - Brachial Plexus

Trunks - Brachial Plexus

- Roots give rise to trunks (upper, middle, lower)

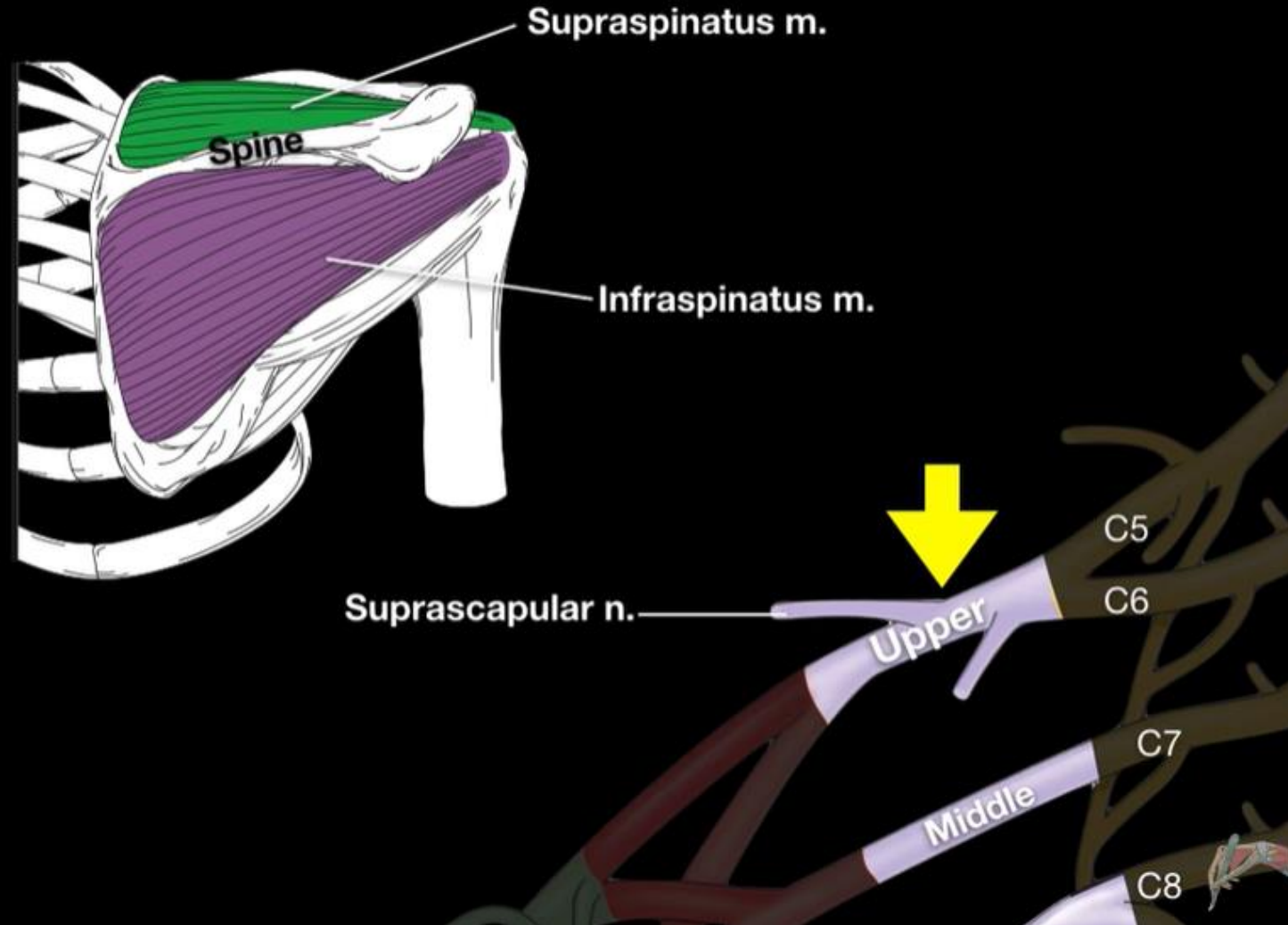
3 Trunks



Brachial plexus
The noted Anatomist
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Trunks - Brachial Plexus

- Suprascapular n. → Supraspinatus & Infraspinatus mm.



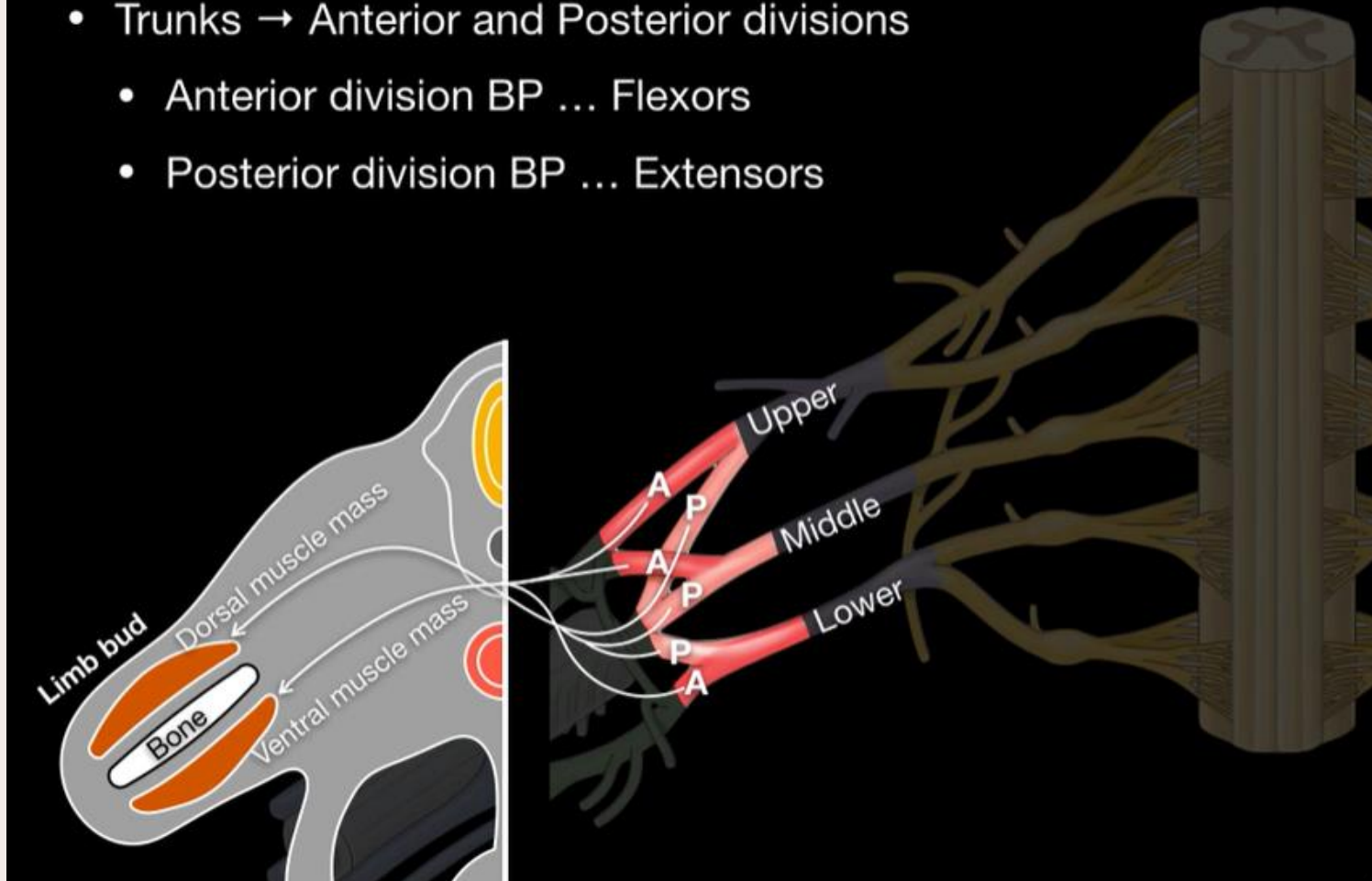
Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Divisions - Brachial Plexus

2 main Divisions:
Anterior &
Posterior
X 3 Trunks
Total: 6 divisions

Divisions - Brachial Plexus

- Trunks → Anterior and Posterior divisions
- Anterior division BP ... Flexors
- Posterior division BP ... Extensors



Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Cords - Brachial Plexus

Cords - Brachial Plexus

- Divisions → 3 cords
- Named in relation to the axillary artery

3 cords:
Lateral cord
Medial cord
Posterior cord

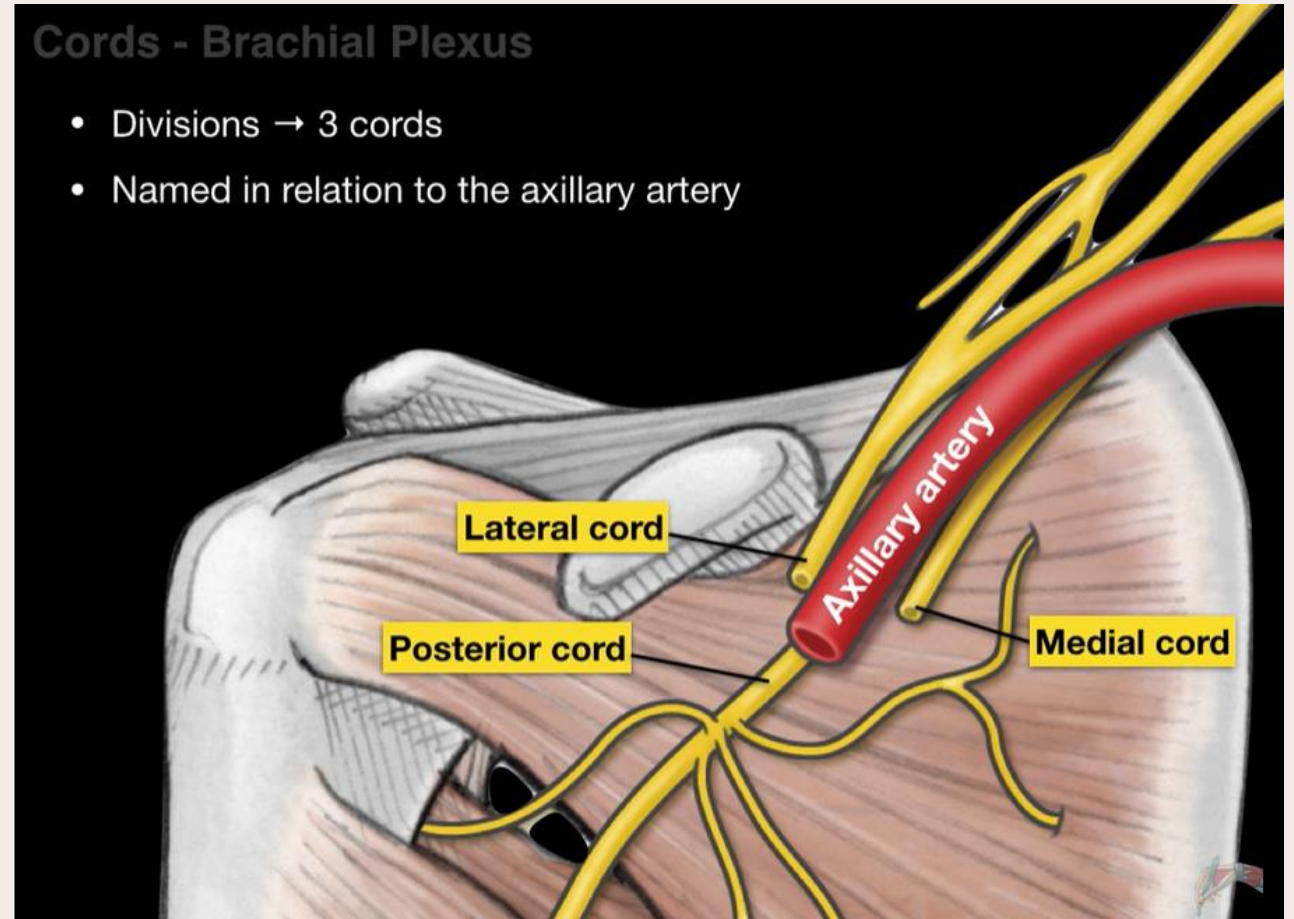
Axillary artery

Lateral
Posterior
Medial

Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Cords - Brachial Plexus

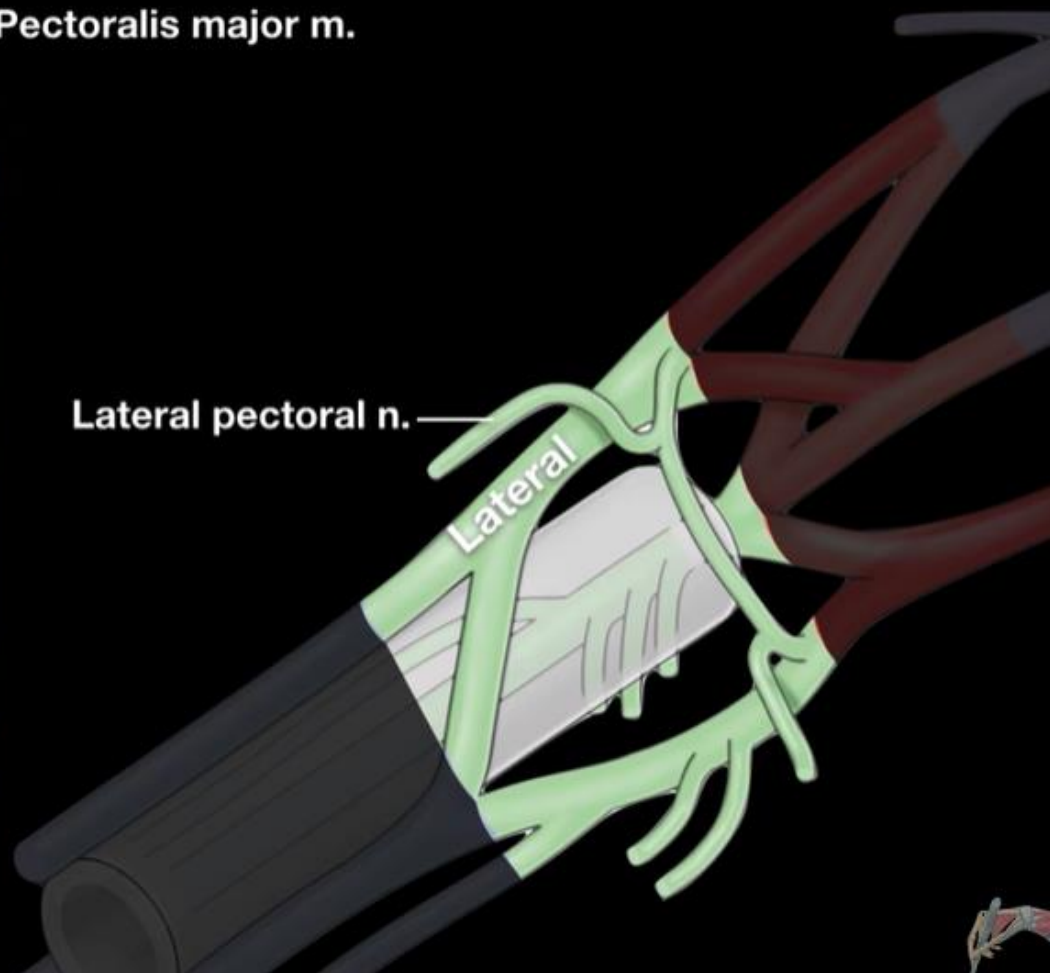
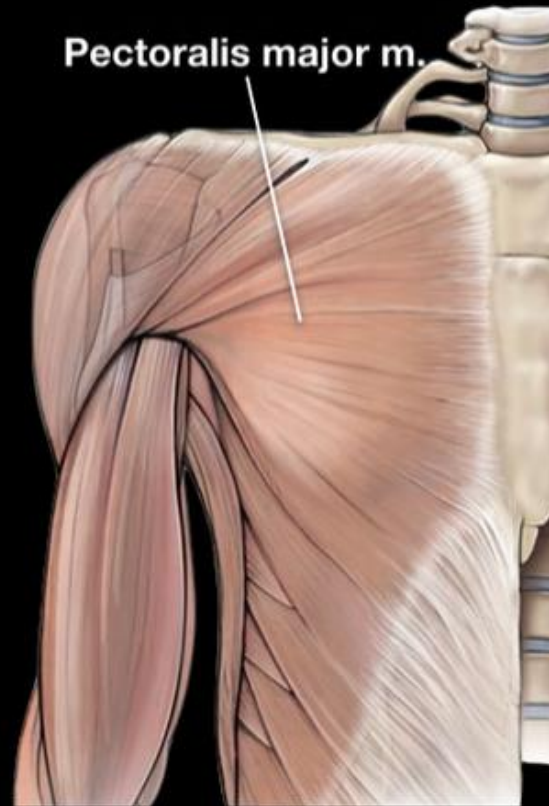
- Divisions → 3 cords
- Named in relation to the axillary artery



Cords - Brachial Plexus

- Lateral cord branches

Lateral pectoral n. → Pectoralis major m.

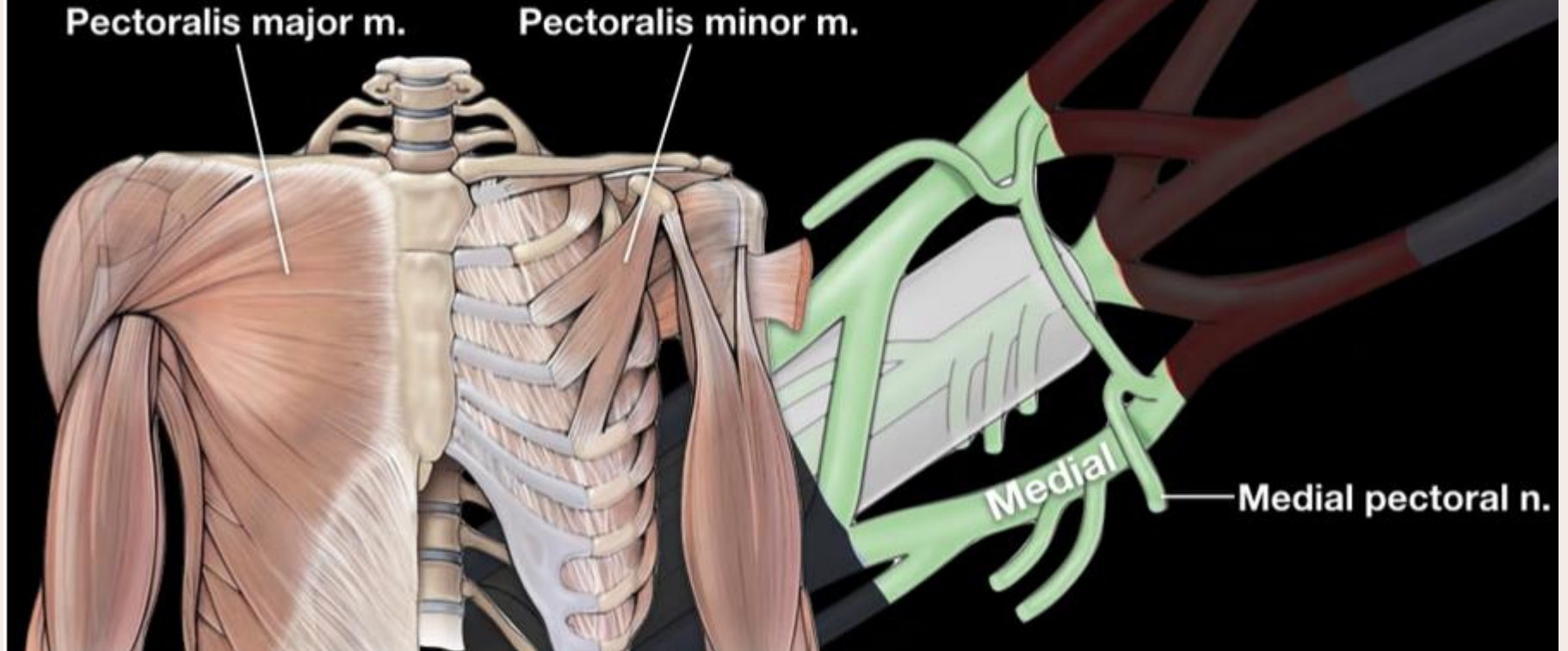


Brachial plexus
The noted Anatomist
https://www.youtube.com/watch?v=RLJ8aUw468M&ab_channel=TheNotedAnatomist

Cords - Brachial Plexus

- Medial cord branches

Medial pectoral n. → Pectoralis major and minor mm.

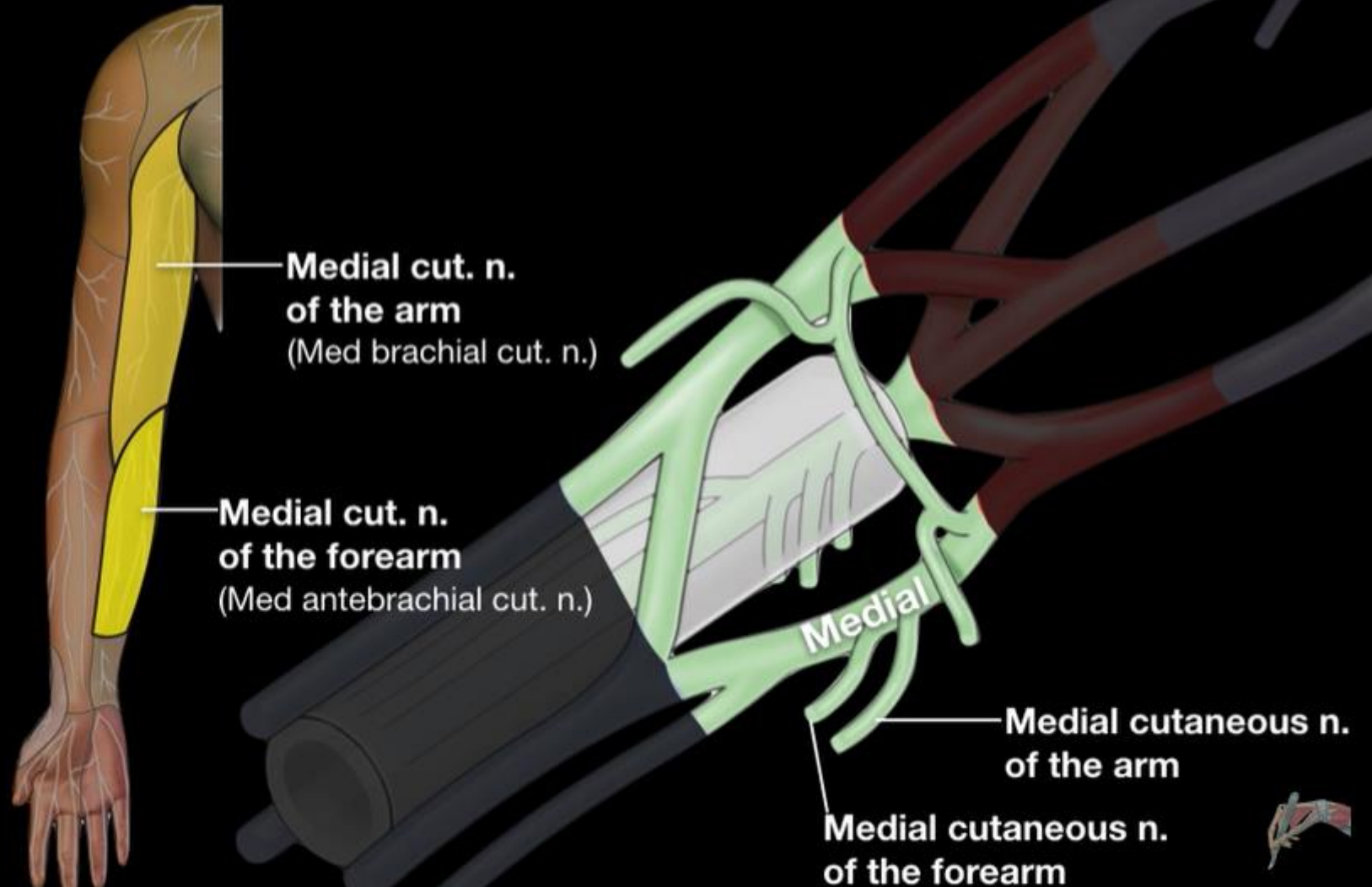


Brachial plexus
The noted Anatomist
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Cords - Brachial Plexus

- Medial cord branches

Medial cutaneous nn. of arm and forearm

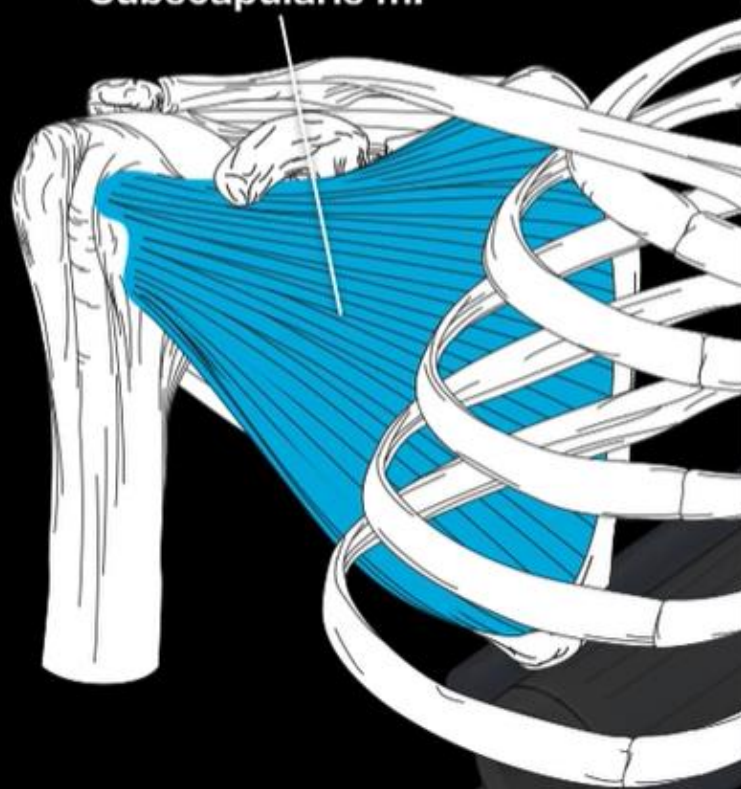


Cords - Brachial Plexus

- Posterior cord branches

Upper and lower subscapular nn. → Subscapularis m.

Subscapularis m.

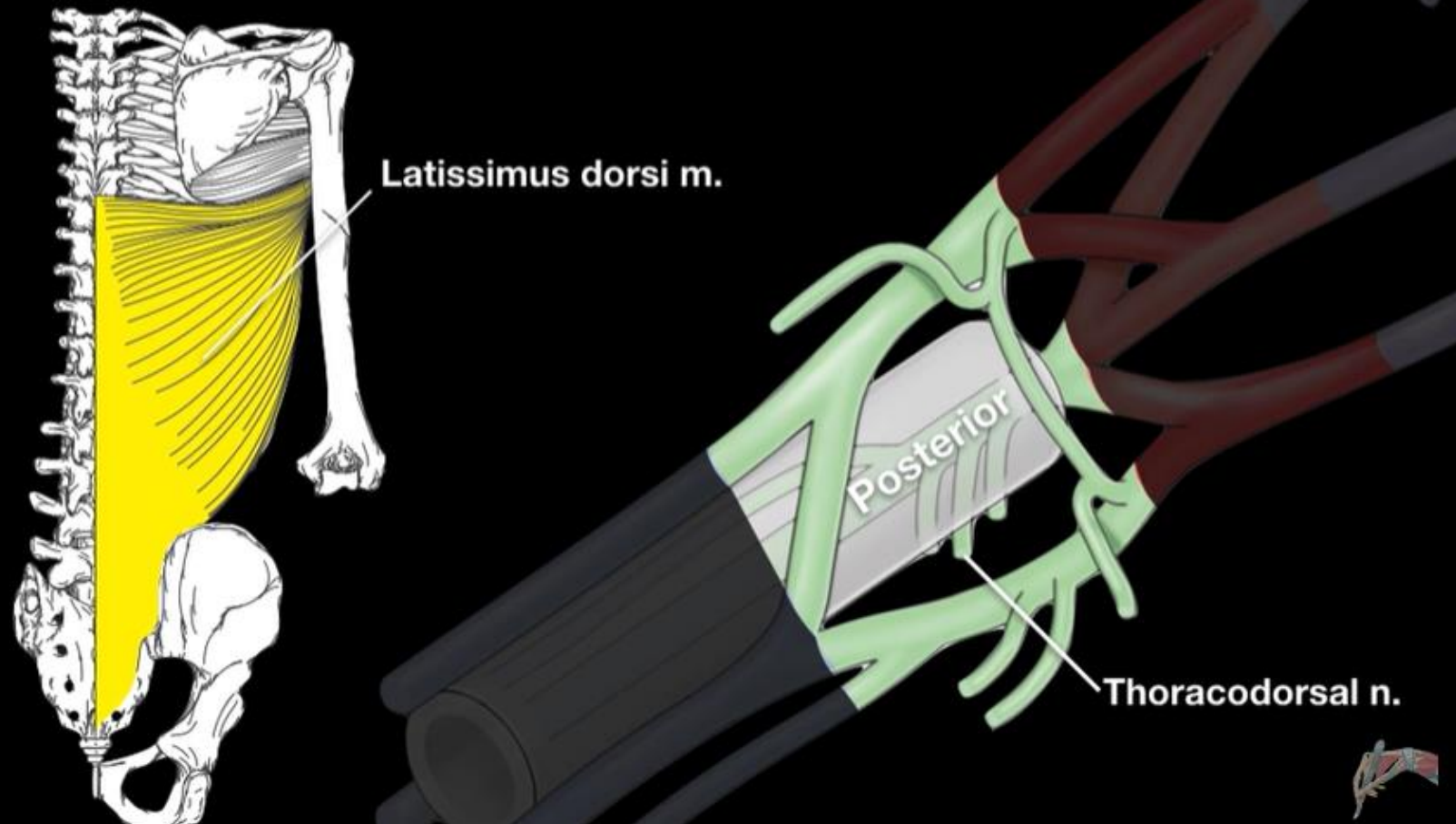


Brachial plexus
The noted Anatomist
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Cords - Brachial Plexus

- Posterior cord branches

Thoracodorsal n. → Latissimus dorsi m.



Brachial plexus
The noted Anatomist
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Terminal Branches - Brachial Plexus

Terminal Branches - Brachial Plexus

- Cords → Terminal branches

**5 Terminal
Branches**

Musculocutaneous n.

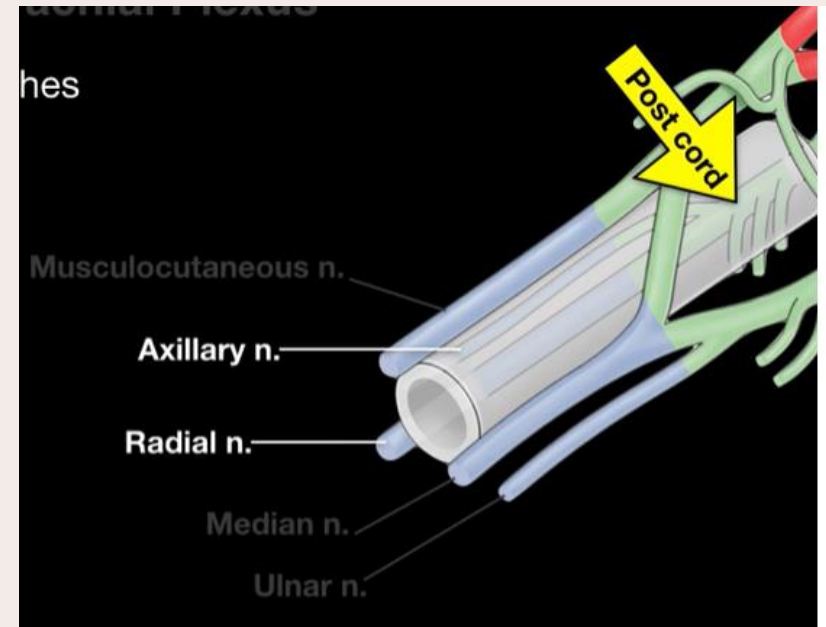
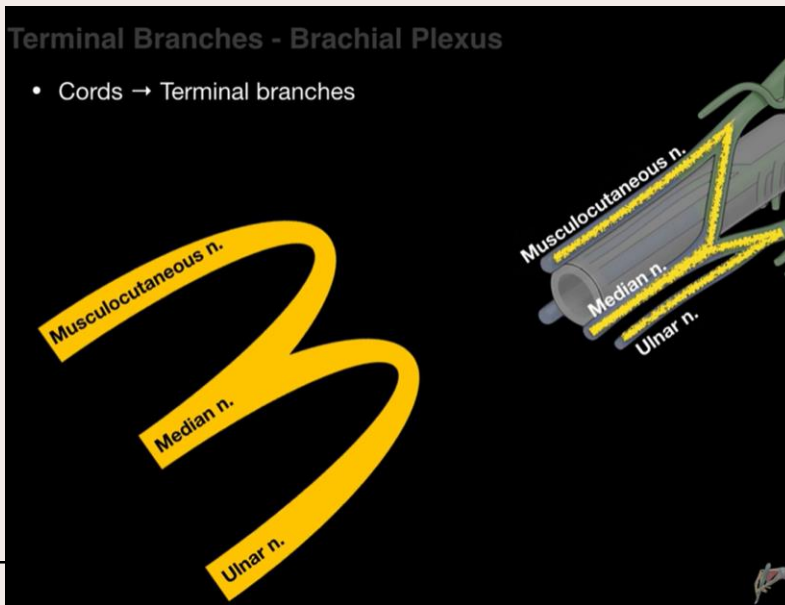
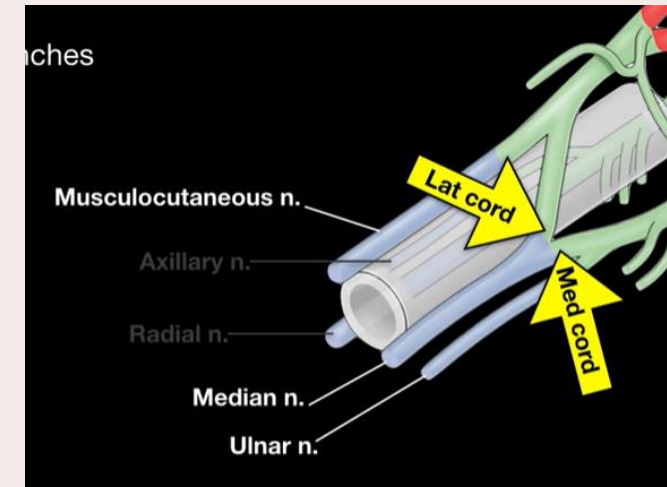
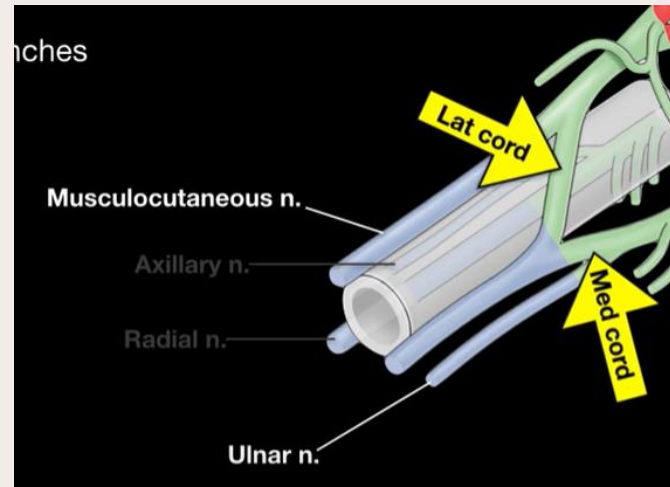
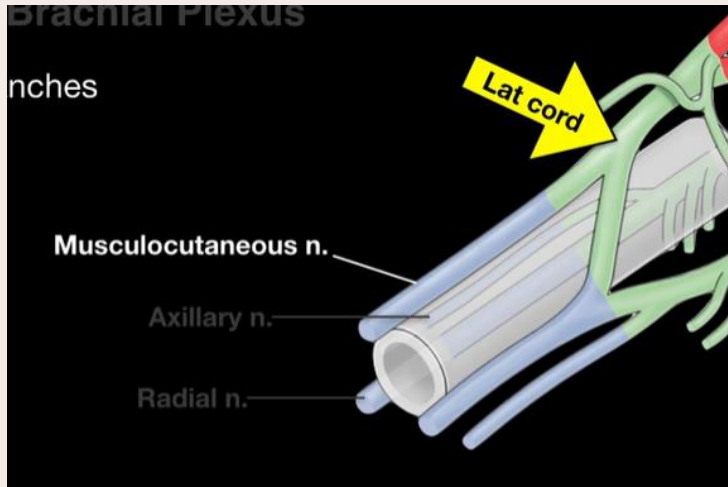
Axillary n.

Radial n.

Median n.

Ulnar n.

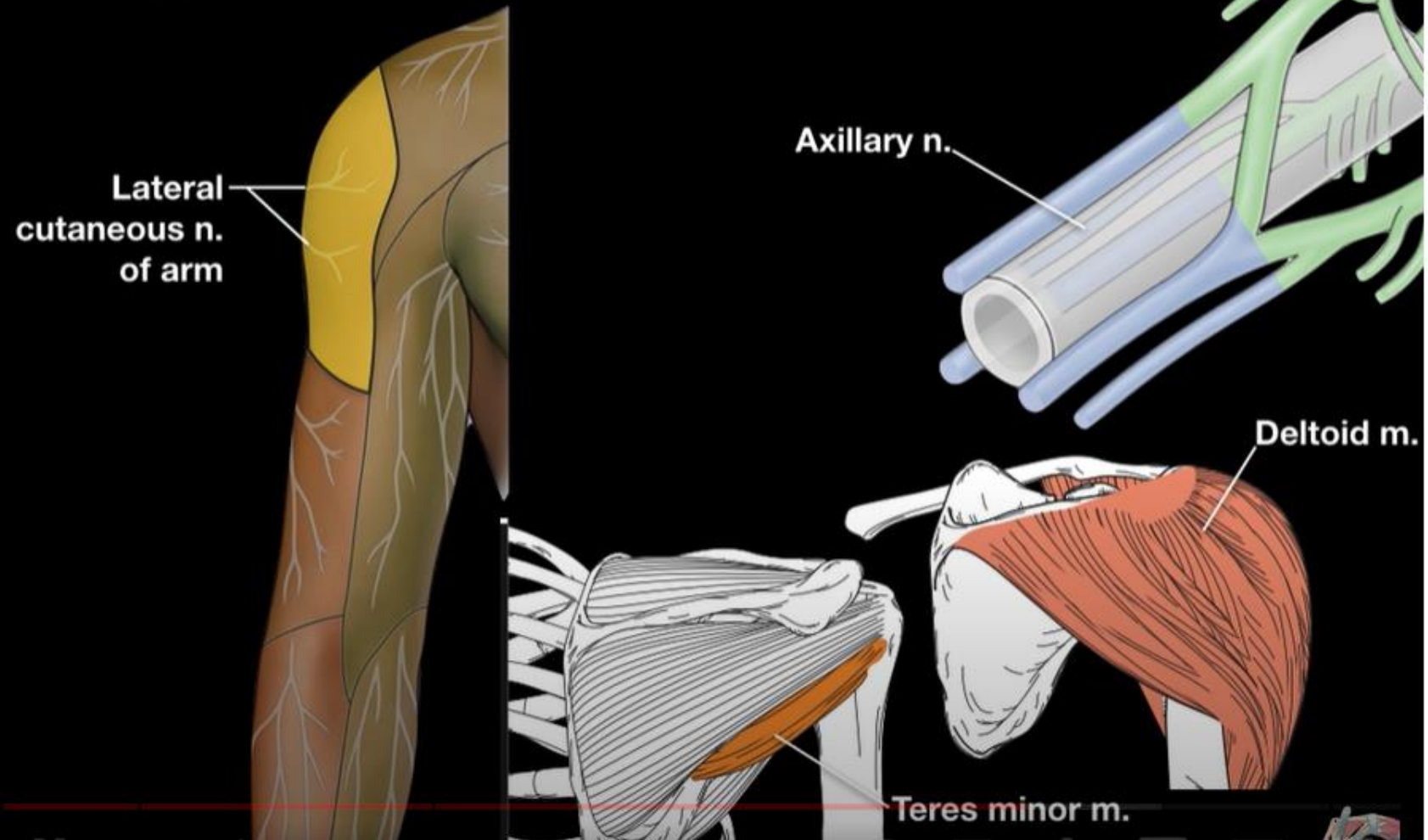
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Terminal Branches - Brachial Plexus

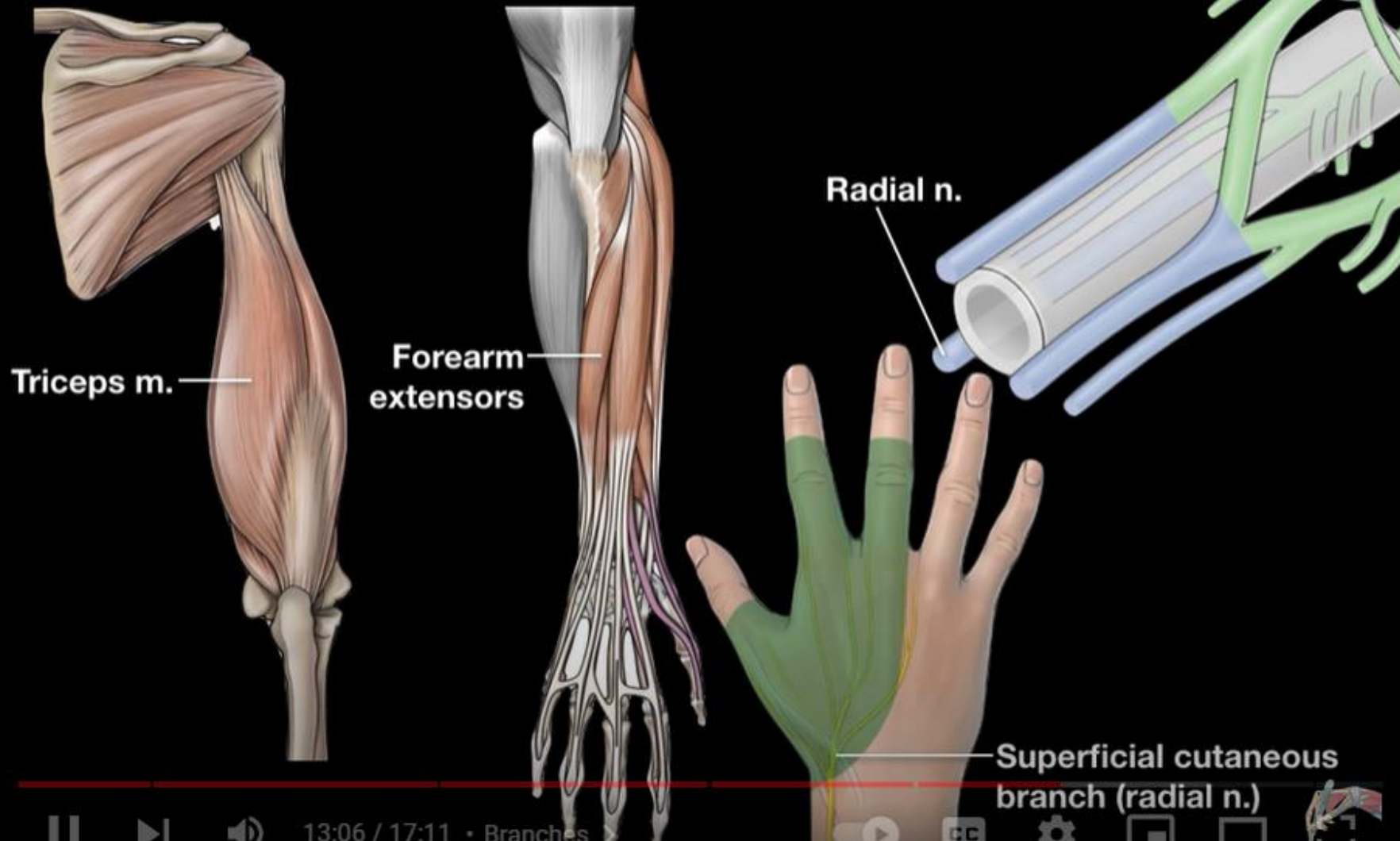
Axillary n. → Deltoid and teres minor mm.; lat cut n. of arm



Brachial plexus
The noted Anatomist
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Terminal Branches - Brachial Plexus

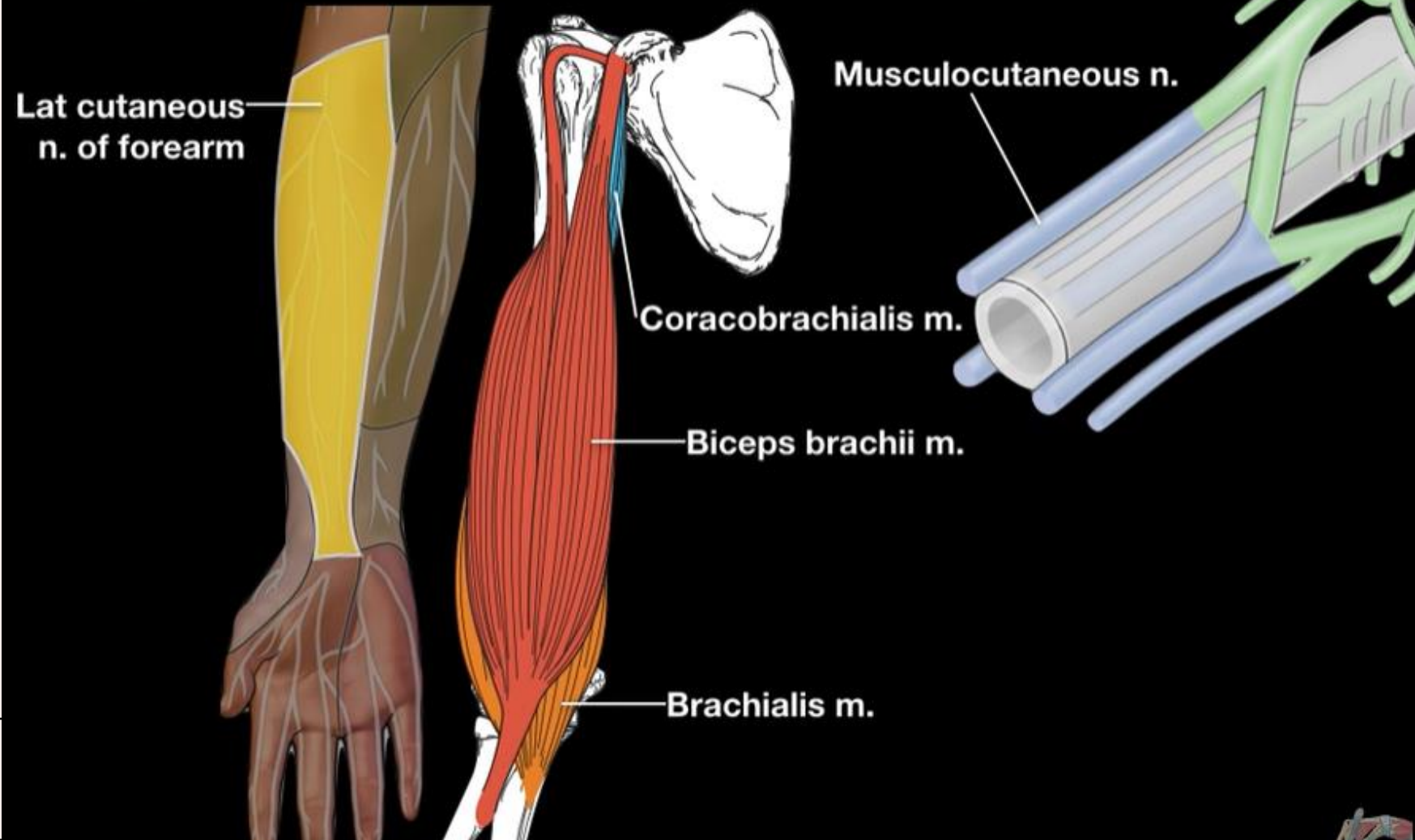
Radial n. → Triceps & forearm extensor mm.; superficial cut br of radial n.



Brachial plexus
The noted Anatomist
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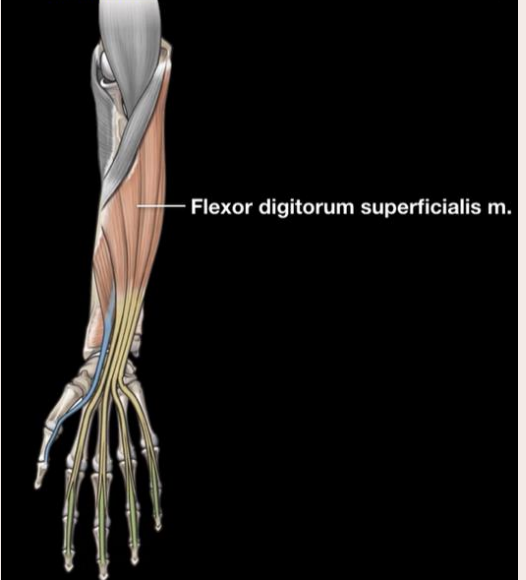
Terminal Branches - Brachial Plexus

Musculocutaneous n. → Biceps, brachialis mm.; lat cut n. of forearm



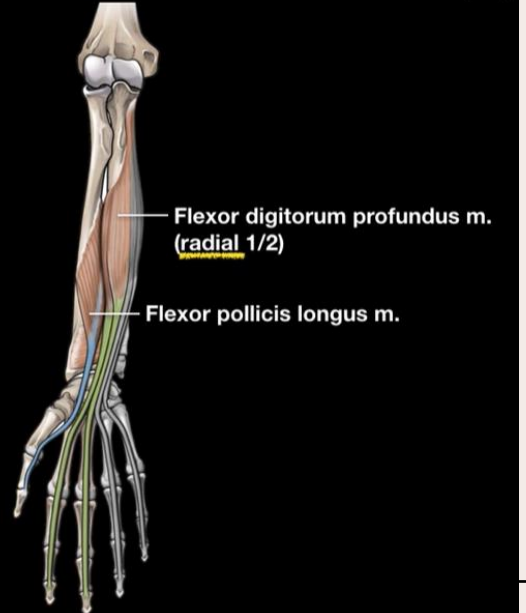
Terminal Branches - Brachial Plexus

Median n. → forearm flexor & thenar mm.; sup



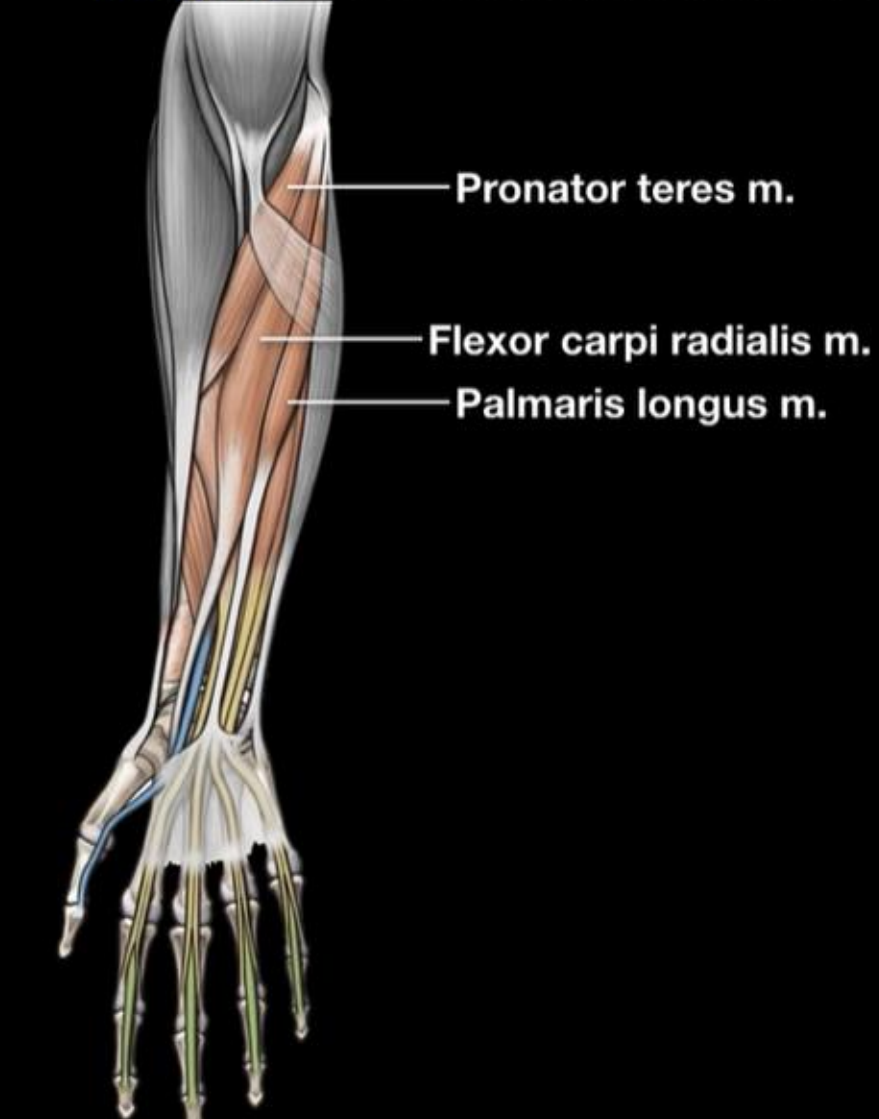
Terminal Branches - Brachial Plexus

Median n. → forearm flexor & thenar mm.; sup

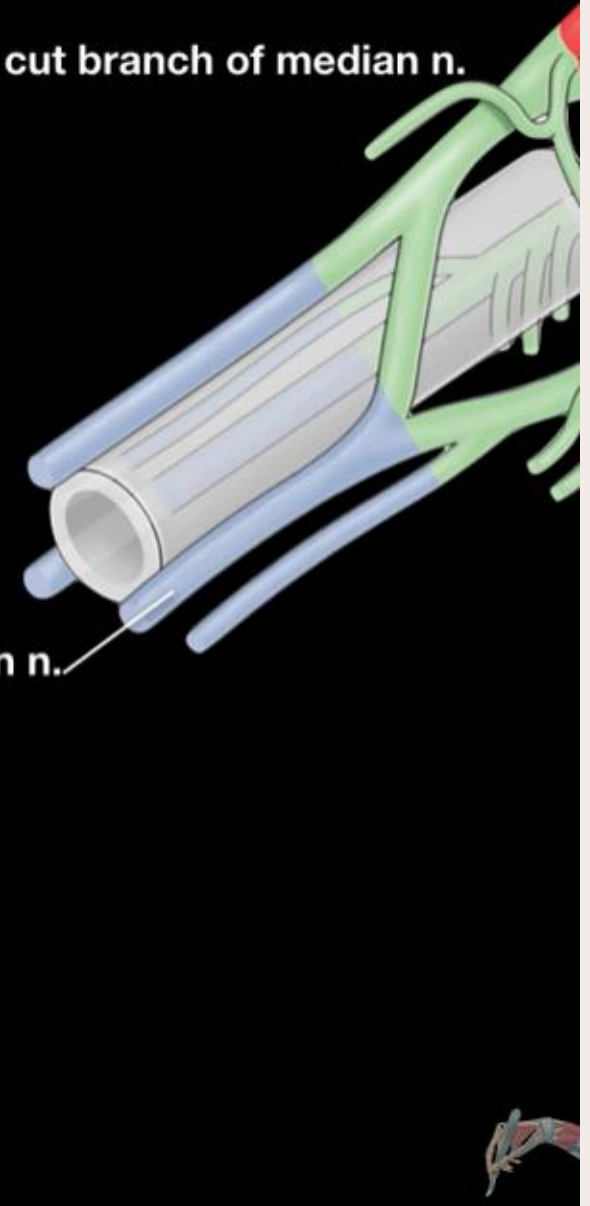


Terminal Branches - Brachial Plexus

Median n. → forearm flexor & thenar mm.; superficial cut branch of median n.

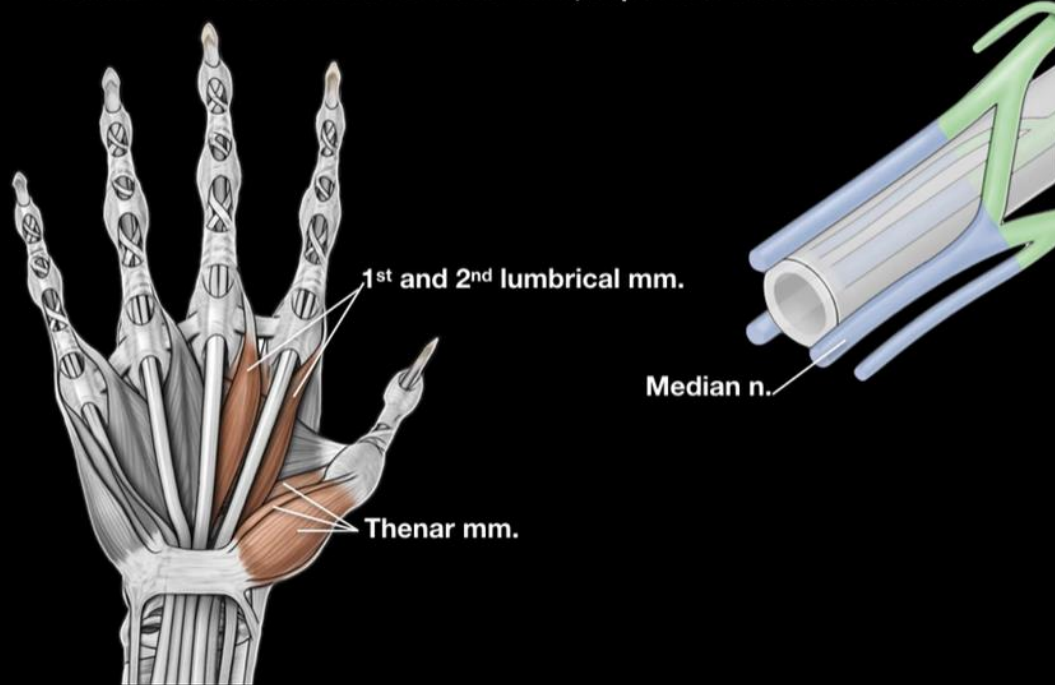


Median n.



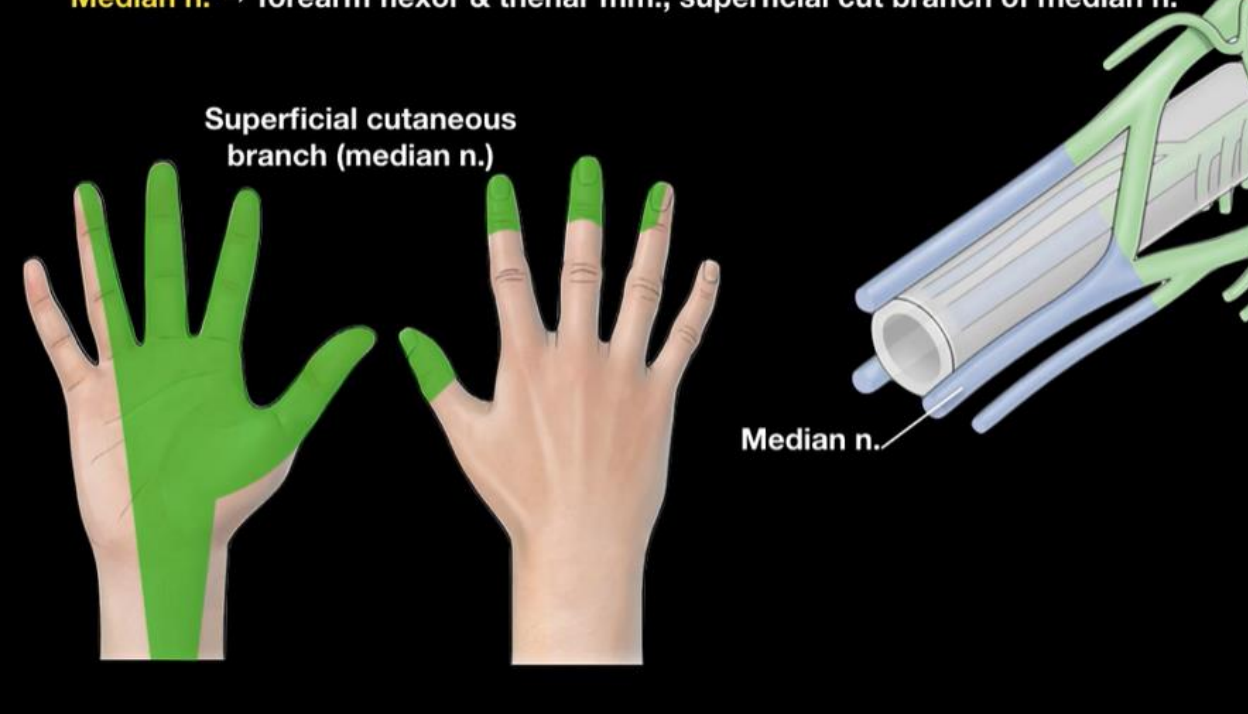
Terminal Branches - Brachial Plexus

Median n. → forearm flexor & thenar mm.; superficial cut branch of median n.



Terminal Branches - Brachial Plexus

Median n. → forearm flexor & thenar mm.; superficial cut branch of median n.



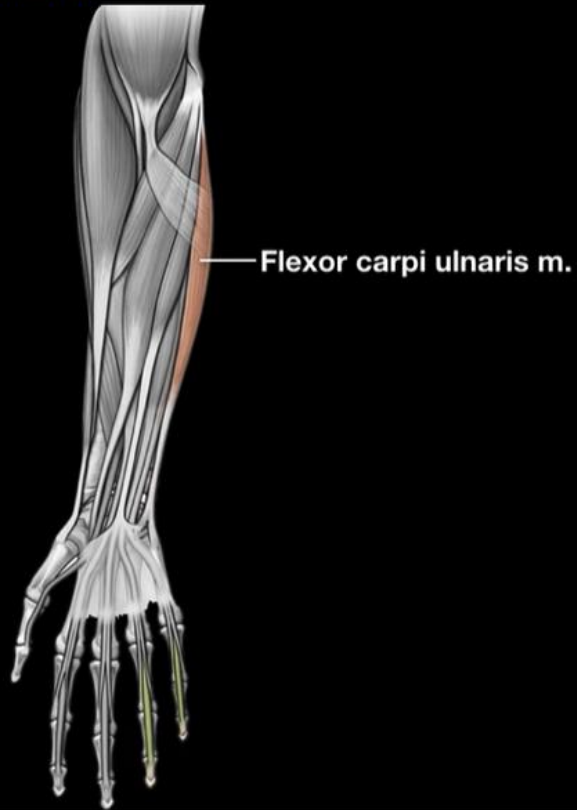
Brachial plexus

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Terminal Branches - Brachial Plexus

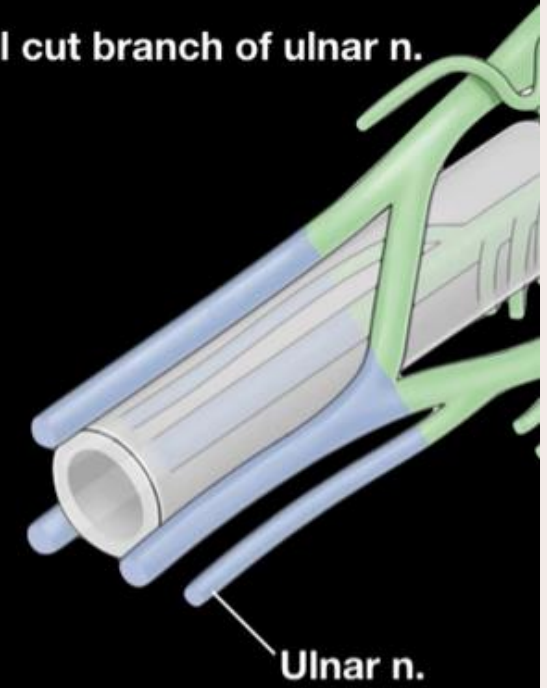
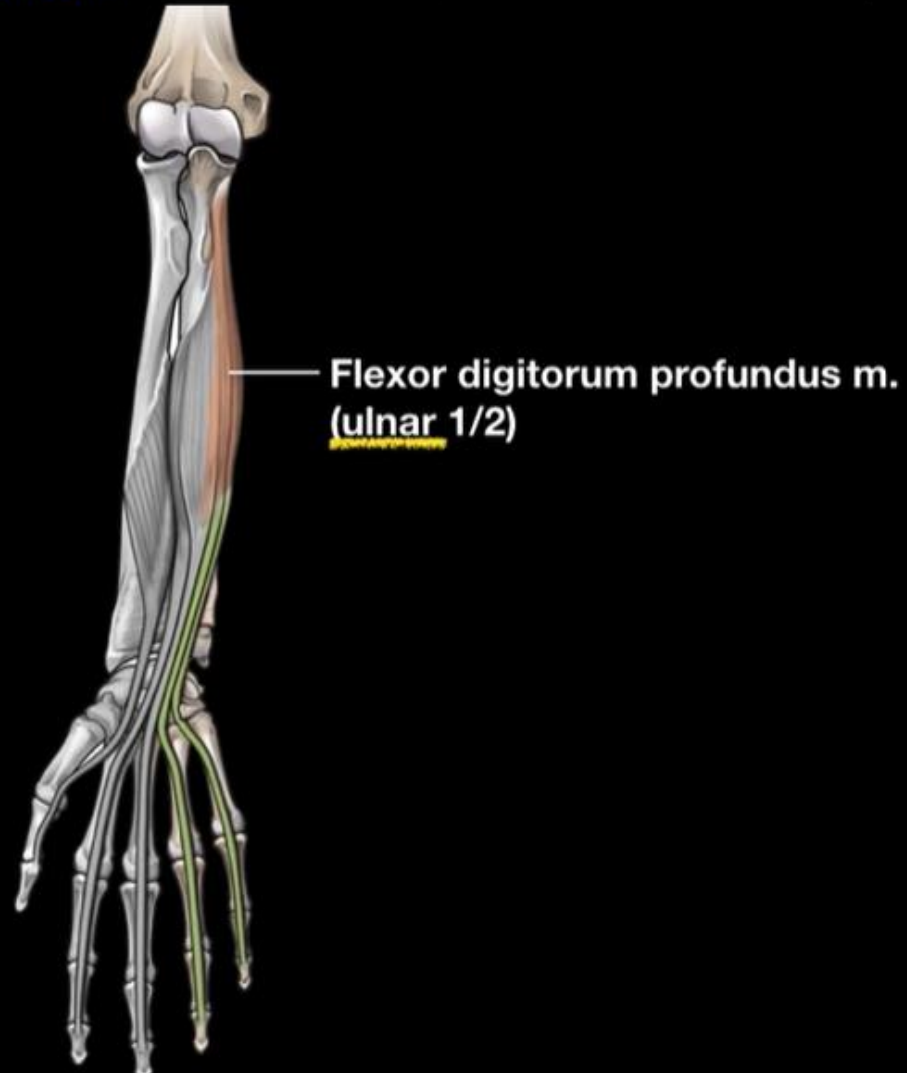
Ulnar n. → FCU, 1/2 FDP, intrinsic hand mm.; s



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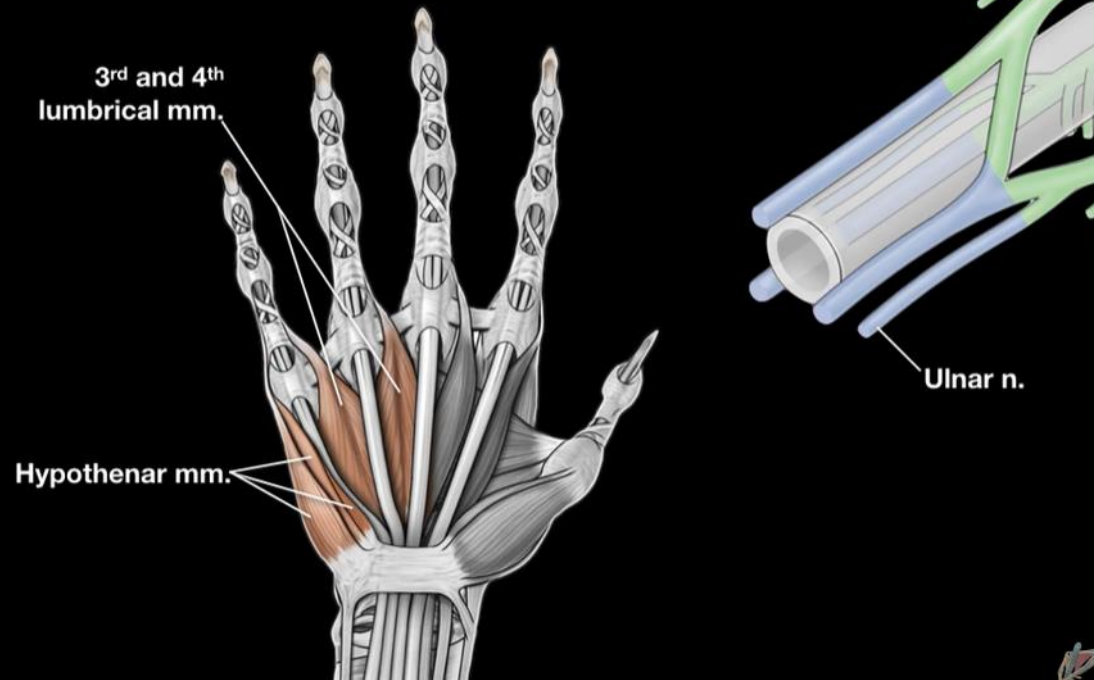
Terminal Branches - Brachial Plexus

Ulnar n. → FCU, 1/2 FDP, intrinsic hand mm.; superficial cut branch of ulnar n.



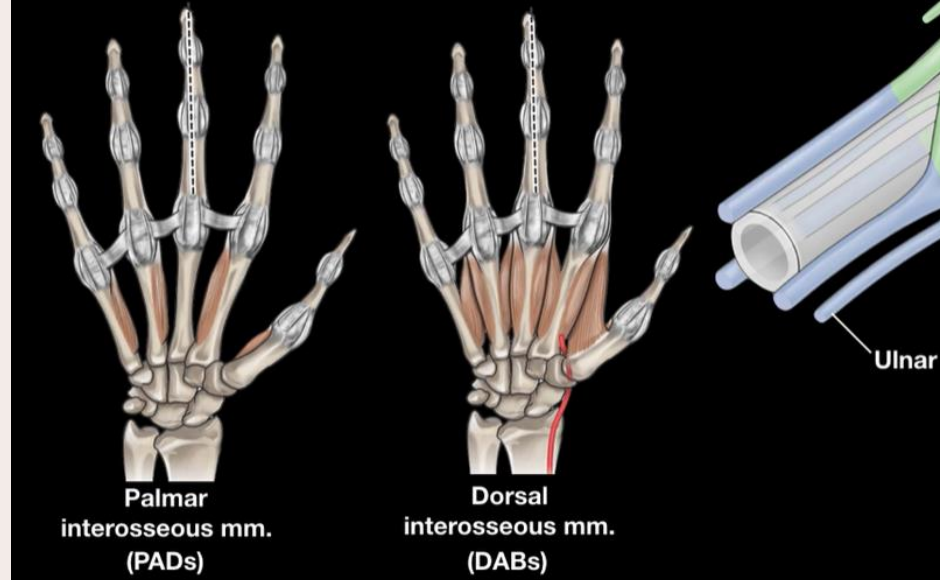
Terminal Branches - Brachial Plexus

Ulnar n. → FCU, 1/2 FDP, intrinsic hand mm.; superficial cut branch of ulnar n.



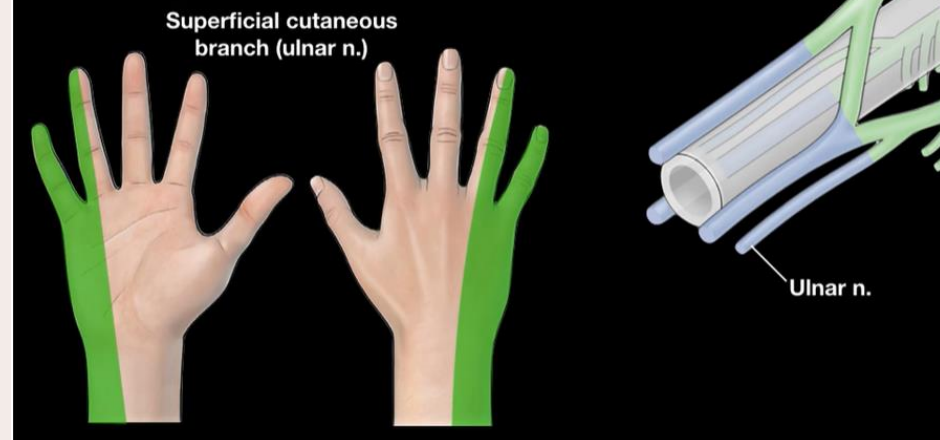
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Ulnar n. → FCU, 1/2 FDP, intrinsic hand mm.; superficial cut branch of ulnar n.



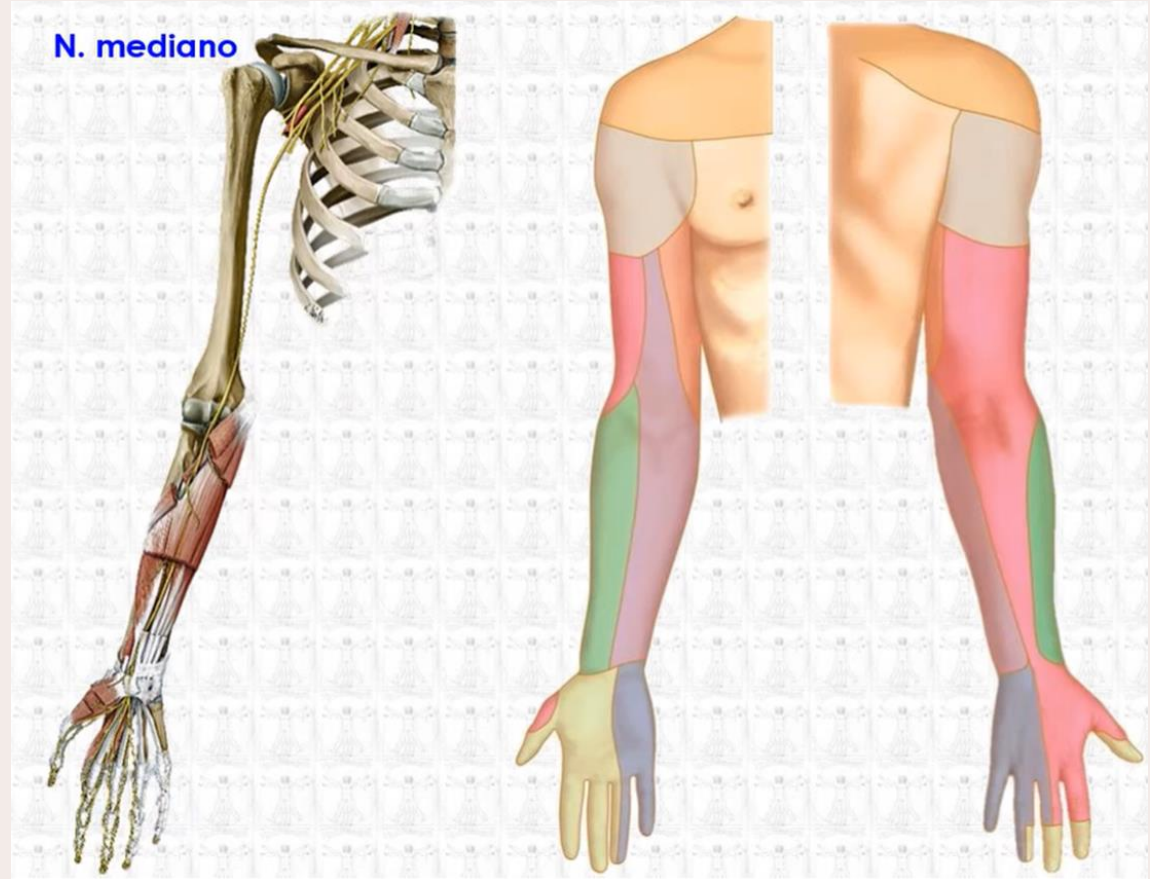
Terminal Branches - Brachial Plexus

Ulnar n. → FCU, 1/2 FDP, intrinsic hand mm.; superficial cut branch of ulnar n.



Acland's Anatomy

Median Nerve Compression



如果一个主诉是3个手指发麻的病人来诊，正中神经卡压基本可以确诊

- 但是，从颈到手常见的卡压部位有10个，是哪里卡压了呢？
- 你如何诊断是那个部位卡压？
- 如果病人有X线片或CT片，诊断有颈椎病或有颈椎间盘突出，你是否怀疑是颈椎病所致？
- 颈神经根的卡压会引起典型的拇、食、中三个半手指麻木吗？
- 怎样进行鉴别诊断？
- 你应在那个部位治疗？

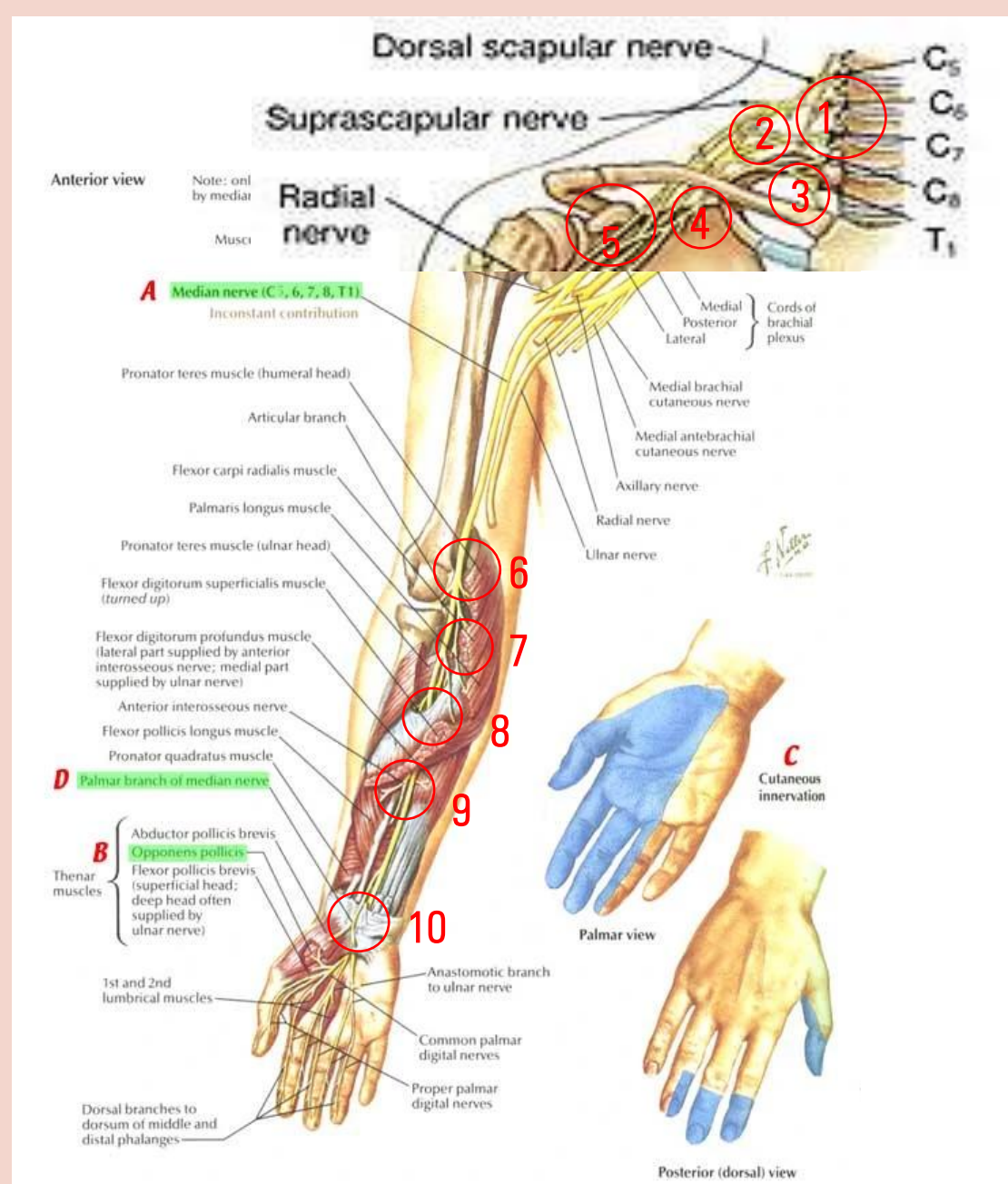


If a patient complains of numbness in three fingers, the median nerve entrapment can basically be diagnosed.

- However, there are 10 common compression sites from the neck to the hands. Where are the compression?
- How do you diagnose which part the nerve is entrapped?
- If the patient has X-ray or CT scan and is diagnosed with cervical spondylosis or cervical disc herniation, do you suspect it is caused by cervical spondylosis?
- Can cervical nerve root entrapment cause typical numbness of the thumb, index, and middle these three and a half fingers?
- How to make a differential diagnosis?
- Where should you treat with Acupuncture?

Median Nerve most compression sites:

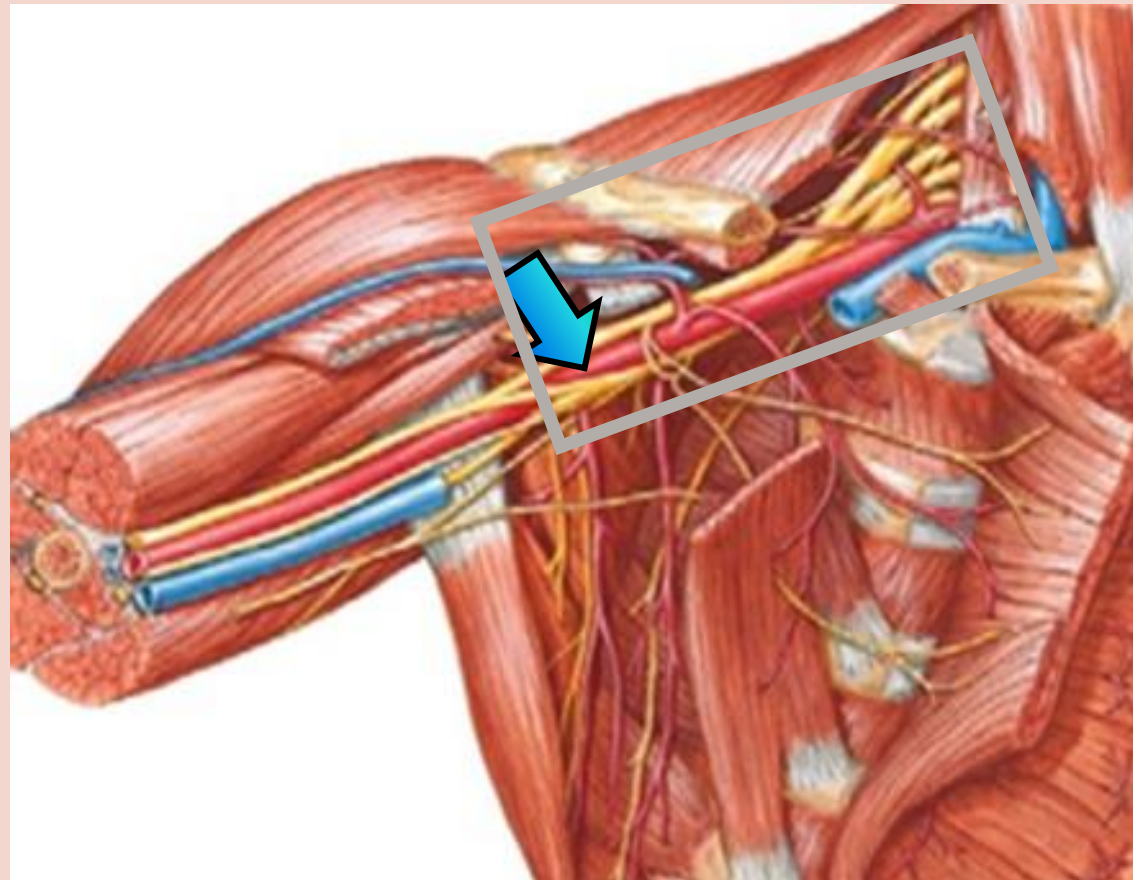
1. Cervical spondylosis 颈椎病
2. Scalene muscle injury 斜角肌损伤
3. Thoracic outlet syndrome 胸廓出口综合症
4. Subclavian muscle injury 锁骨下肌损伤
5. Pectoralis minor muscle injury (coracoid process point) 胸小肌损伤 (喙突点)
6. Entrapment of Struthers ligament of medial epicondyle of humerus 肱骨内上髁Struthers韧带卡压
7. Biceps aponeurosis entrapment 肱二头肌腱膜卡压
8. Pronator teres muscle injury 旋前圆肌损伤
9. Carpal flexor tendon injury 腕屈肌腱损伤
10. Carpal tunnel syndrome 腕管综合症



The **trunk** is compressed:

The **trunk** is from the tip of the transverse process of the cervical spine to above the pectoralis minor muscle.

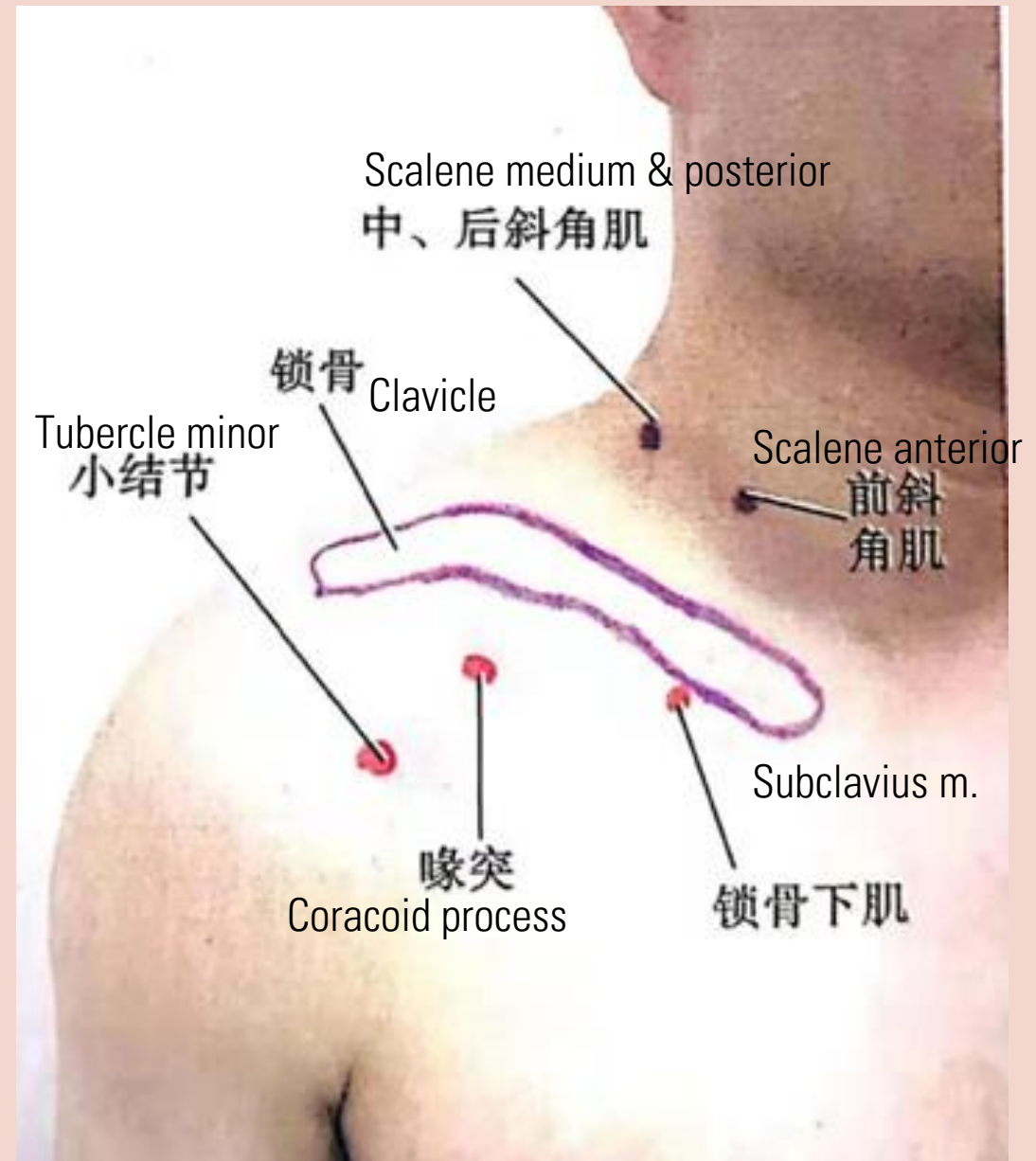
颈椎横突尖至胸小肌以上为干——**干部卡压**



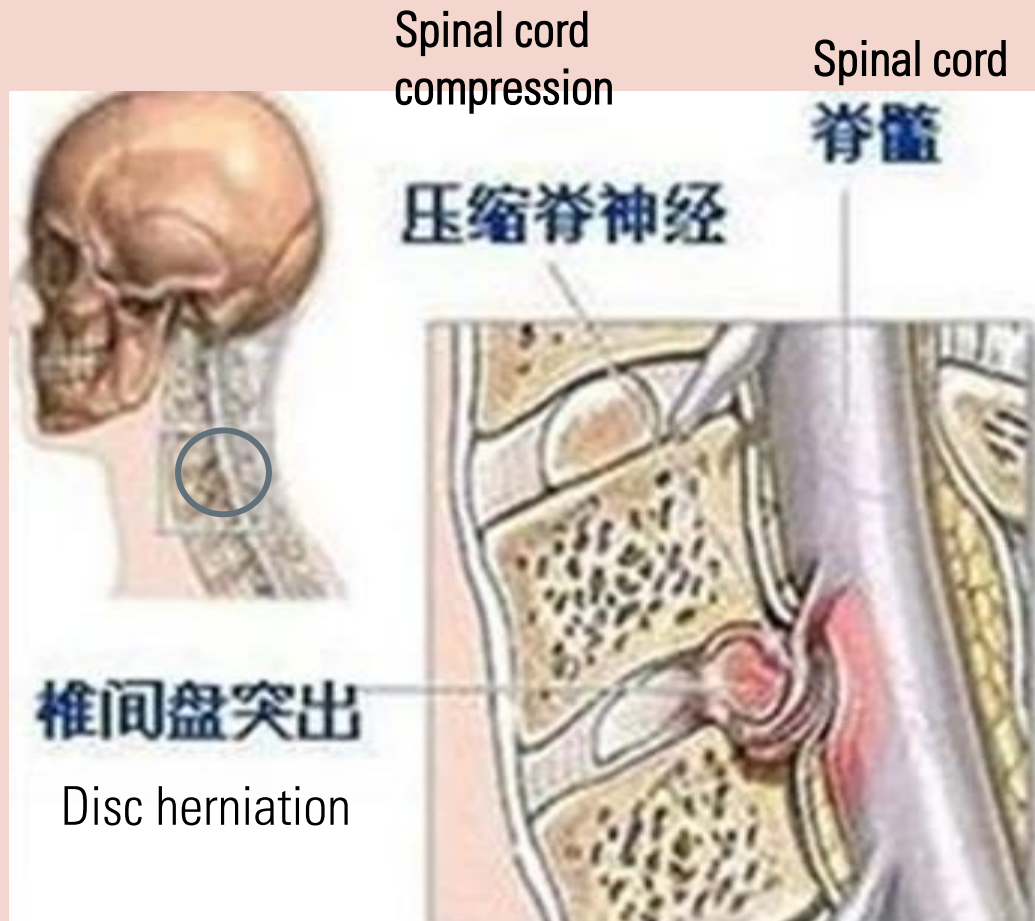
The **trunk** is compressed:

There are **5** common entrapment sites above the pectoralis minor muscle (coracoid process point):
胸小肌（喙突点）以上卡压常见的卡压部位5个

1. Cervical spondylosis 颈椎病
2. Scalene muscle injury 斜角肌损伤
3. Thoracic outlet syndrome 胸廓出口综合症
4. Subclavian muscle injury 锁骨下肌损伤
5. Pectoralis minor muscle injury (coracoid process point) 胸小肌损伤（喙突点）



1. Cervical Spondylosis 颈椎病



Diagnosis of Cervical Spondylosis :

1. The pain is **radicular neuralgia**, which radiates like lightning and is consistent with the distribution of **nerve roots**. The pain and numbness of the patient's neck can be aggravated
2. Patient manifested finger numbness, but also **neck**, shoulder, arm pain and other symptoms.
3. The patient has obvious tenderness in the **neck**.
4. Most patients have positive changes in neck imaging examinations.
5. Test check:
 - ① **Positive brachial plexus stretching test**: the examiner holds the affected side of the patient's head with one hand, holds the upper limb of the affected side with the other hand, abducts the patient by 90° and stretches both hands in opposite directions. If there is radiating pain or numbness, it is positive.
 - ② **Positive intervertebral foramina extrusion test**: the patient's head is tilted to the affected side, the doctor puts the left palm on the top of the patient's head, makes a fist with the right hand, and taps the back of the left hand lightly, and the patient with radiating pain in the affected limb is positive.

诊断:

- 1、其疼痛性质属根性神经痛，为闪电样放射，并与神经根分布一致，患者颈部活动疼痛、麻木可加重
- 2、患者不仅有手指麻木，还多有颈、肩、臂部疼痛等症状
- 3、患者颈部有明显压痛点。
4. 患者颈部影像学检查多有阳性改变。
5. 试验检查：
 - ①臂丛牵拉试验阳性：检查者一手扶病人头部的患侧，另一手握患侧上肢，将其外展90°两手作反方向牵拉，若有放射性痛或麻木感即为阳性。
 - ②椎间孔挤压试验阳性：患者头偏向患侧，术者用左手掌放于病人头顶，右手握拳，轻轻叩击左手背部，患肢有放射性疼痛者为阳性。

2. Scalene muscle injury 斜角肌综合征

▪ Origin

- Scalenus Anterior: Anterior tubercles of the transverse processes of vertebrae C3-C6
- Scalenus Medius: Posterior tubercles of the transverse processes of vertebrae C2-C7
- Scalenus Posterior: Posterior tubercles of the transverse processes of vertebrae C5-C7

▪ Insertion

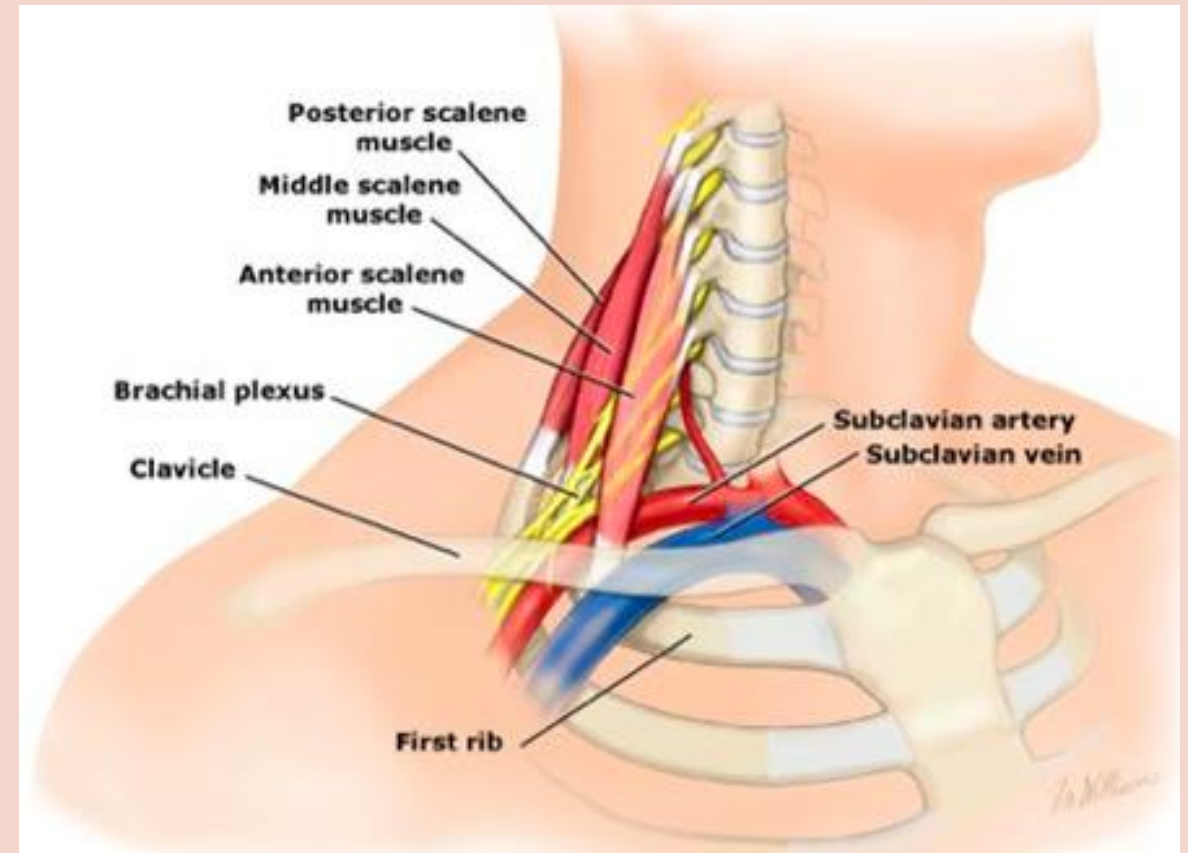
- Scalenus Anterior: Scalene tubercle of the first rib
- Scalenus Medius: Upper surface of the first rib behind the subclavian artery
- Scalenus Posterior: Lateral surface of the second rib

▪ Nerve Supply

- Scalenus Anterior: Brachial plexus, C5-C7
- Scalenus Medius: Brachial plexus, C3-C8
- Scalenus Posterior: Brachial plexus, C7-C8

▪ Action

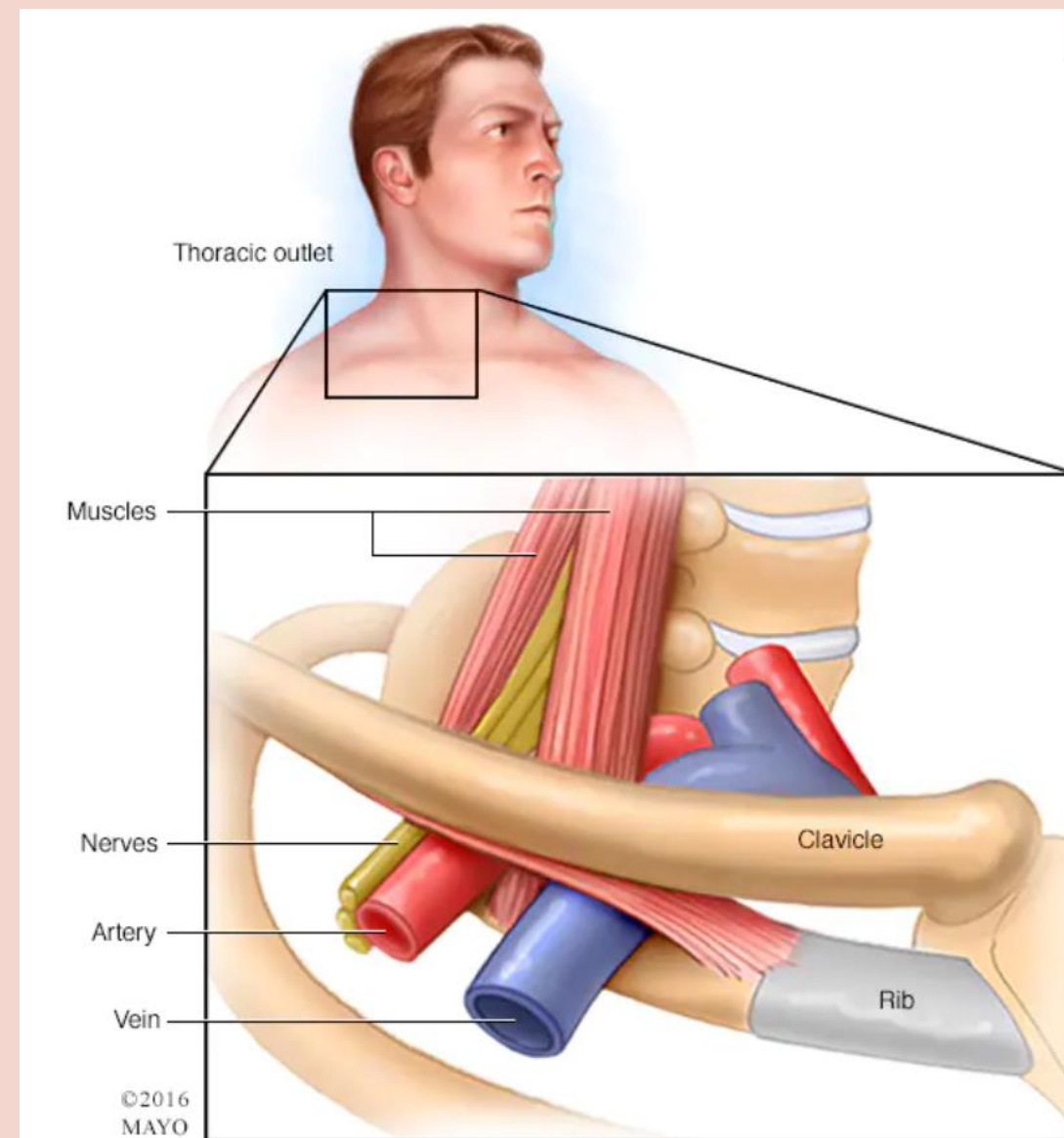
- Flexes & rotates neck
- Scale muscle syndrome refers to various reasons that cause scalene muscle edema, hyperplasia, and spasm, resulting in narrowing of the scalene muscle space, entrapment of the brachial plexus and subclavian artery passing through it, and causing corresponding clinical symptoms.



- 起于颈椎3~6横突的**前结节**，止于第一肋骨内缘斜角肌结节。
- 中斜角肌在三个斜角肌中最大最长，起于下六颈椎横突的**后结节**，于第一肋骨的上缘。
- 斜角肌综合征是指各种原因引起斜角肌水肿、增生、痉挛，导致斜角肌间隙狭窄，卡压穿行其间的臂丛神经及锁骨下动脉而引起相应临床症状。

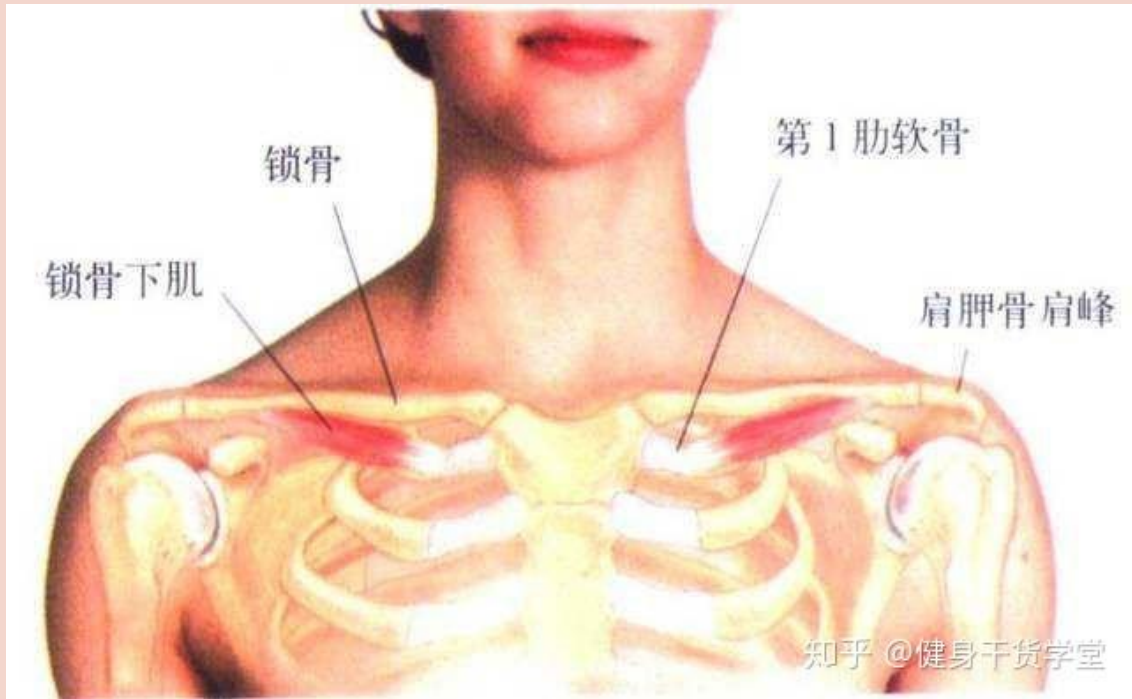
3. Thoracic outlet syndrome 胸廓出口综合征

- A group of disorders that occur when blood vessels or nerves in **the space between the clavicle and the first rib (thoracic outlet) are compressed**. Can cause shoulder and neck pain, and numbness in the fingers.
 - Common causes of **thoracic outlet syndrome** include trauma, repetitive injuries from work or sports, and certain anatomical defects.
 - According to the compression structure, it can be divided into:
 - Neurotype: The proportion of neurotype is as high as 90%, and the symptoms and signs are changeable. Affected limb pain, weakness, numbness, muscle atrophy, etc.
 - Venous type: 3-12%, arm edema, pain, cyanosis.
 - Arterial type: 1-3%, arterial type causes arm pain, chills, pallor.
-
- 是锁骨和第一肋骨之间空间（胸廓出口）内的血管或神经受到压迫时出现的一组疾病。可导致肩部和颈部疼痛，以及手指麻木。
 - 胸廓出口综合征的常见原因包括外伤、工作或体育运动等引起的反复性损伤、某些解剖缺陷等。
 - 根据受压结构可分为：
 - 神经型：神经型比例高达90%，症状体征多变。患肢疼痛、無力、麻木，肌肉萎缩等
 - 静脉型：3-12%，手臂水腫、疼痛、發紺
 - 动脉型：1-3%，動脈型則造成手臂疼痛、發冷、蒼白



4. Subclavian muscle injury 锁骨下肌损伤

- **Subclavian muscle** injury can cause pain in the upper limb on the same side, from the front of the shoulder to the radial side of the forearm and hand, numbness and pain in the back and palm of the thumb, index and middle fingers.
- 锁骨下肌出现问题会导致同侧上肢疼痛，从肩前沿上臂前侧至前臂和手部桡侧，拇、示、中指背侧及掌侧麻木疼痛。



Subclavian muscle injury:

- It is more common in middle-aged people, women are more than men, and the right side is more than the left side.
- Symptoms vary depending on the compressed tissue.
 1. Subclavian artery compression.
 2. Brachial plexus compression.
 3. Simultaneous compression of subclavian artery and brachial plexus.

锁骨下肌损伤:

多发于中年人，女性多於男性，右侧多於左侧。

其症状则因受压的组织而有所不同。

1.锁骨下动脉受压 缺血性跳痛，伴有酸痛与不适。开始于颈部放射到手与手指，以麻木及麻刺感明显，**疼痛的部位没有明确的界限**。颈椎的活动可使疼痛加重，颈部伸 直，使斜角肌间隙变小因而加重疼痛，颈部屈曲能使斜角肌间隙加大，疼痛可得以缓解。引患肢使肩胛下降则可使症状加重。

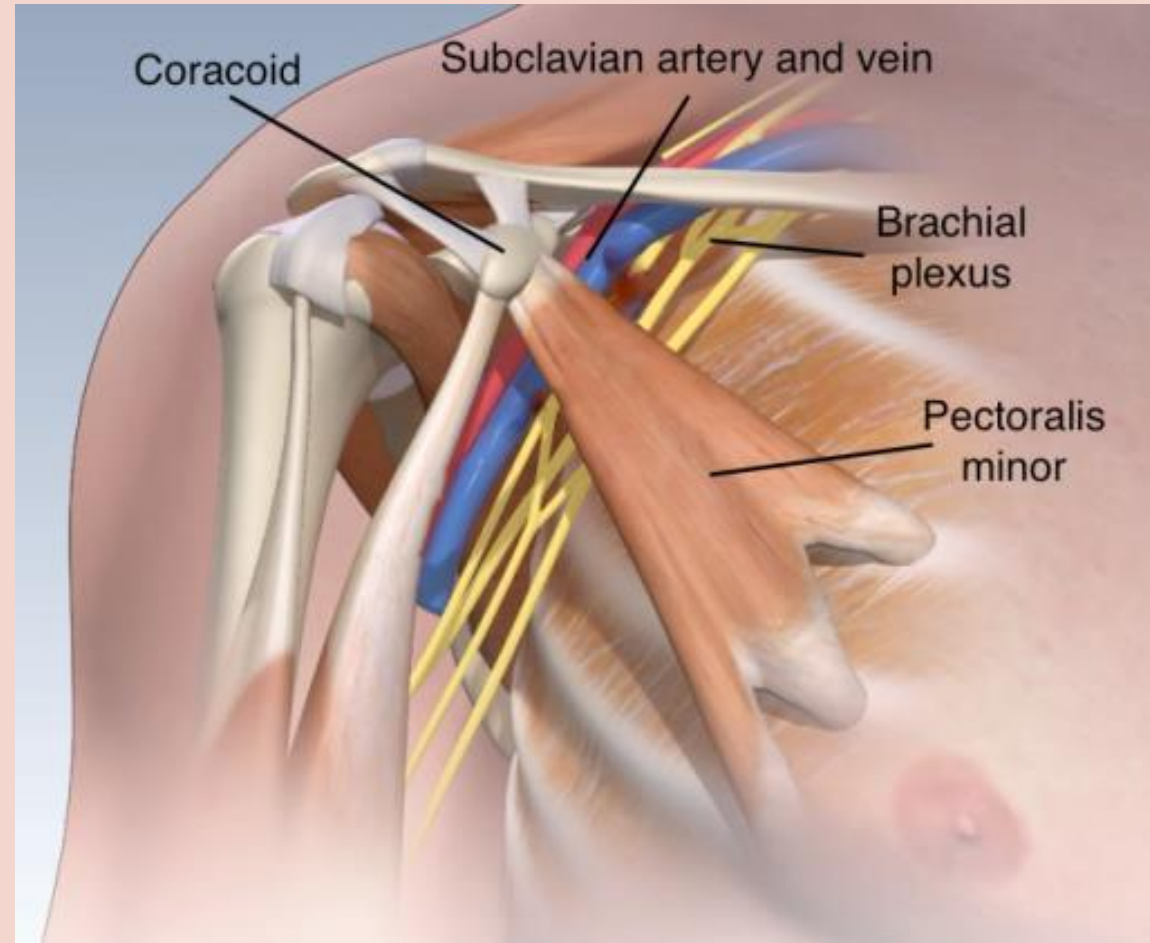
2.臂丛神经受压 锐性疼痛，并向前臂内侧以及4、5手指放射。

3.锁骨下动脉与臂丛神经同时受压 患肢痛、麻，手部寒凉、运动障碍及反射消失

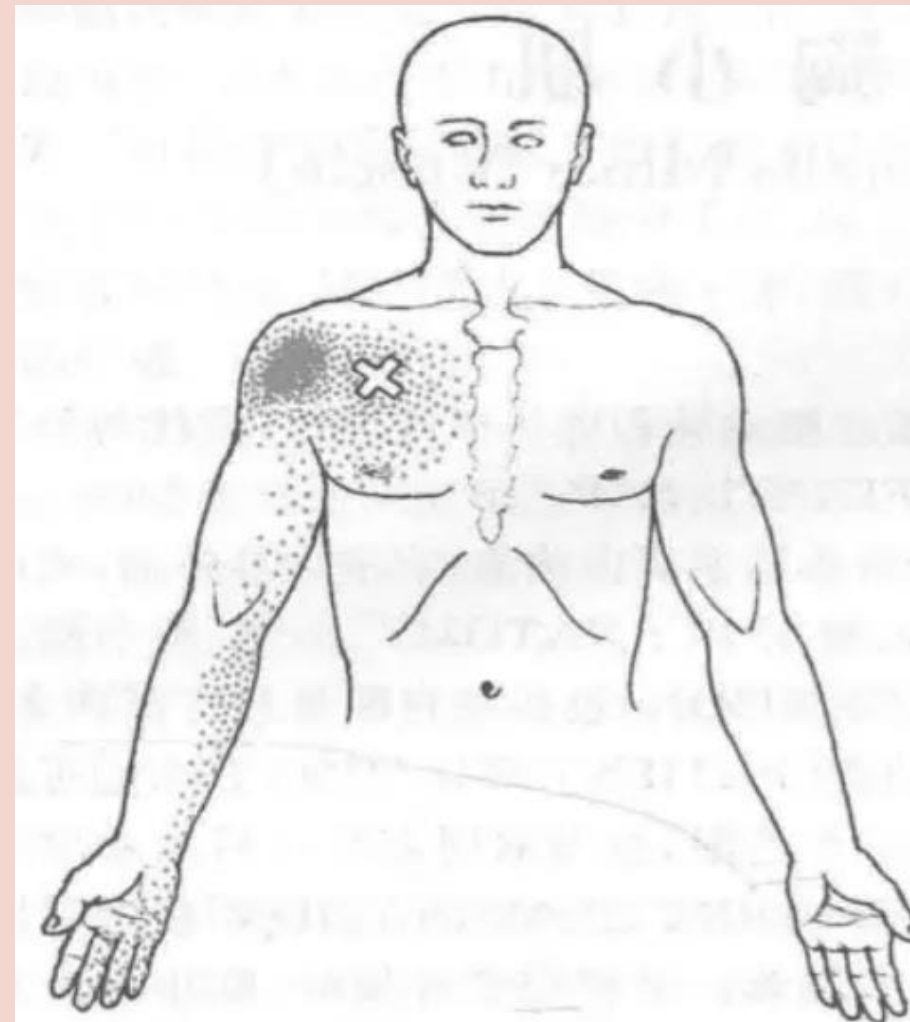
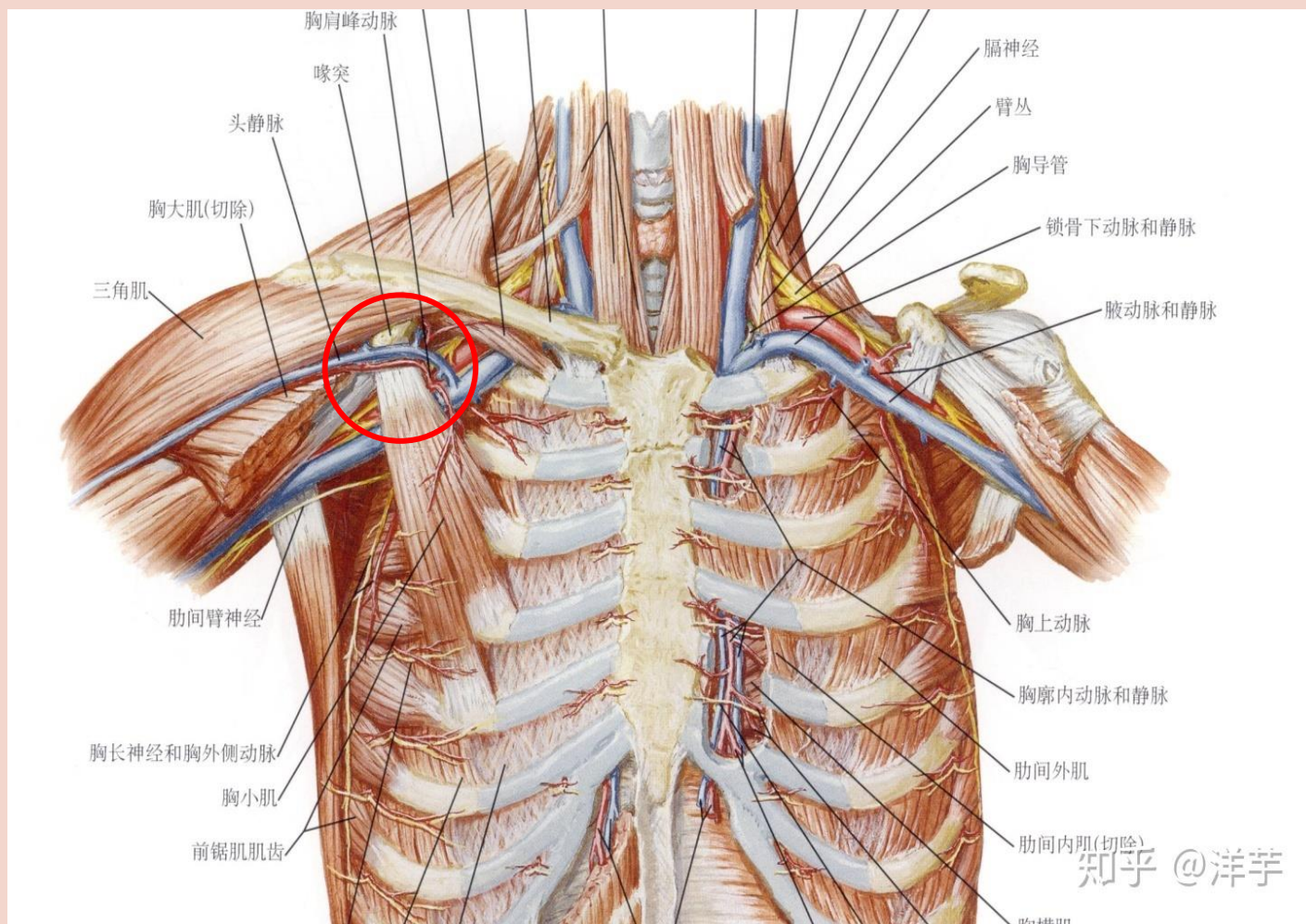
病人常用手支撑头部，使之向患侧倾斜，借此缓解前斜角肌的张力。在锁骨上窝可扪及前斜角肌紧张、压痛。颈部伸直加重疼痛。有时手部出现过敏与寒凉、运动障碍及反射消失。

5. Pectoralis minor muscle injury (coracoid process point) 胸小肌綜合徵

- A series of clinical symptom syndromes caused by pectoralis minor muscle hypertrophy, contracture, brachial plexus, subclavian artery, and subclavian vein.
- **Origin:** 3rd to 5th ribs near their costal cartilages.
Insertion: Medial border and superior surface of coracoid process of scapula.
Action: Stabilizes scapula by drawing it inferiorly and anteriorly against thoracic wall.
Innervation: Medial pectoral nerves; clavicular head (C8 and T1).
Arterial Supply: Pectoral branch of the thoracoacromial trunk.
- 胸小肌肥厚、挛缩压迫臂丛、锁骨下动脉、锁骨下静脉所引起的一系列临床症状综合征。



Pectoralis minor muscle injury (coracoid process point) 胸小肌綜合徵



The **branch** is compressed:

Below the pectoralis minor muscle (**coracoid process point**) is the branch.

胸小肌（喙突点）以下是支——支部卡压

There are 5 common entrapment sites below the pectoralis minor muscle (coracoid process point):

胸小肌（喙突点）以下卡压常见的卡压部位5个：

1. Entrapment of Struthers ligament of medial epicondyle of humerus

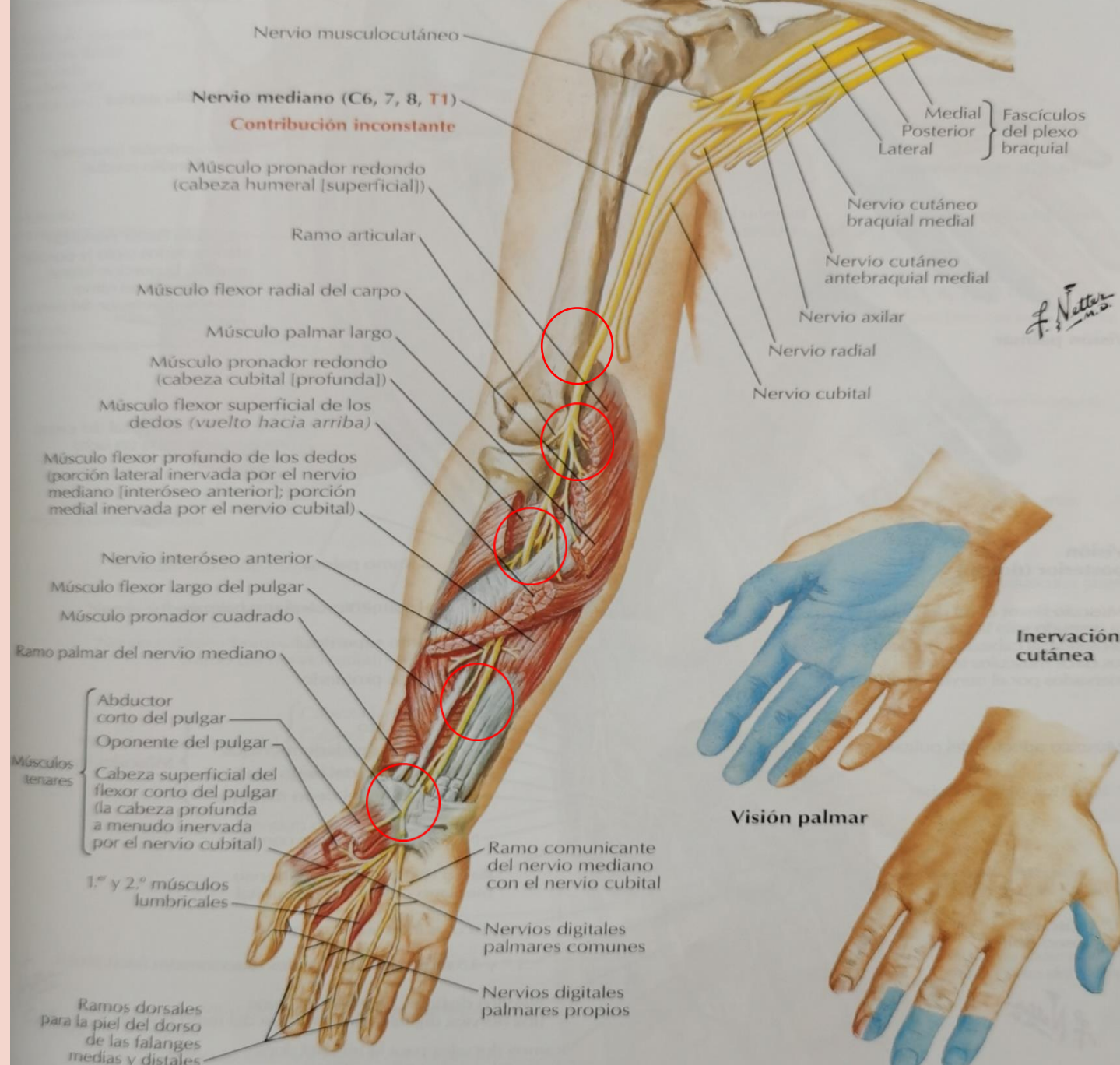
肱骨内上髁Struthers韧带卡压

2. Biceps aponeurosis entrapment 肱二头肌腱膜卡压

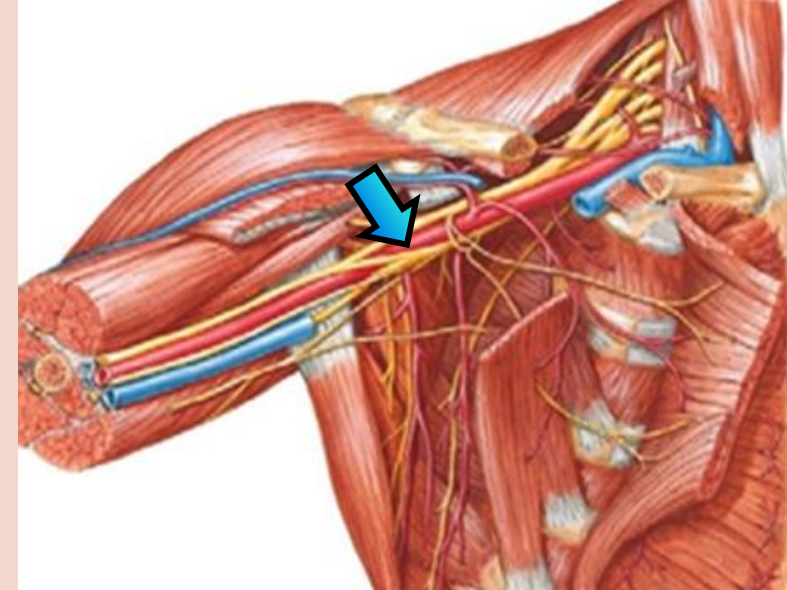
3. Pronator teres muscle injury 旋前圆肌损伤

4. Carpal flexor tendon injury 腕屈肌腱损伤

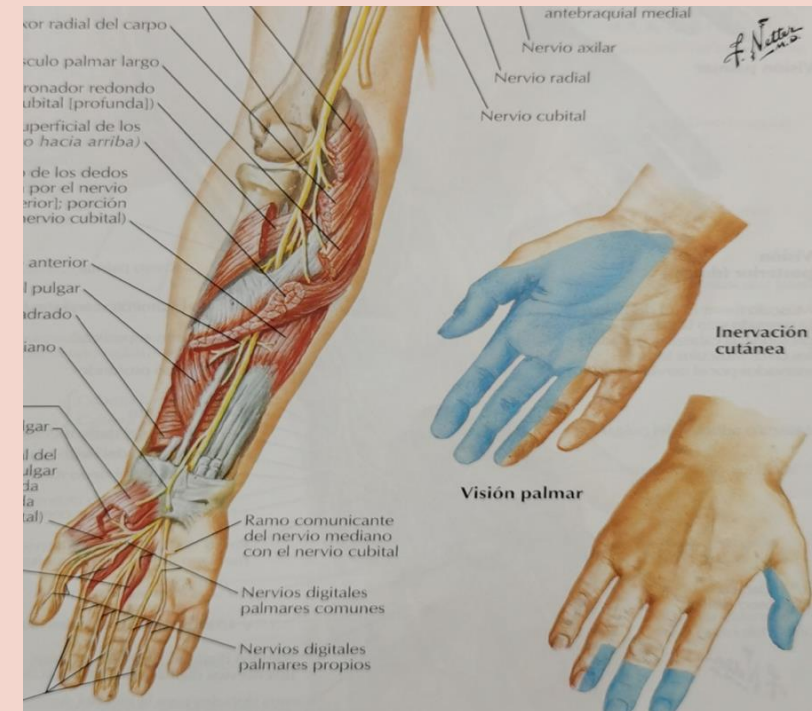
5. Carpal tunnel syndrome 腕管综合症



- The entrapment **above** the 5 major branches (from roots to cords) is often accompanied by **arterial and venous entrapment**, and the clinical symptoms are more complex and diverse.
- The **median nerve entrapment** is a typical numbness of **three and a half fingers**, and the entrapment should mostly be below the pectoralis minor muscle (coracoid process point) .



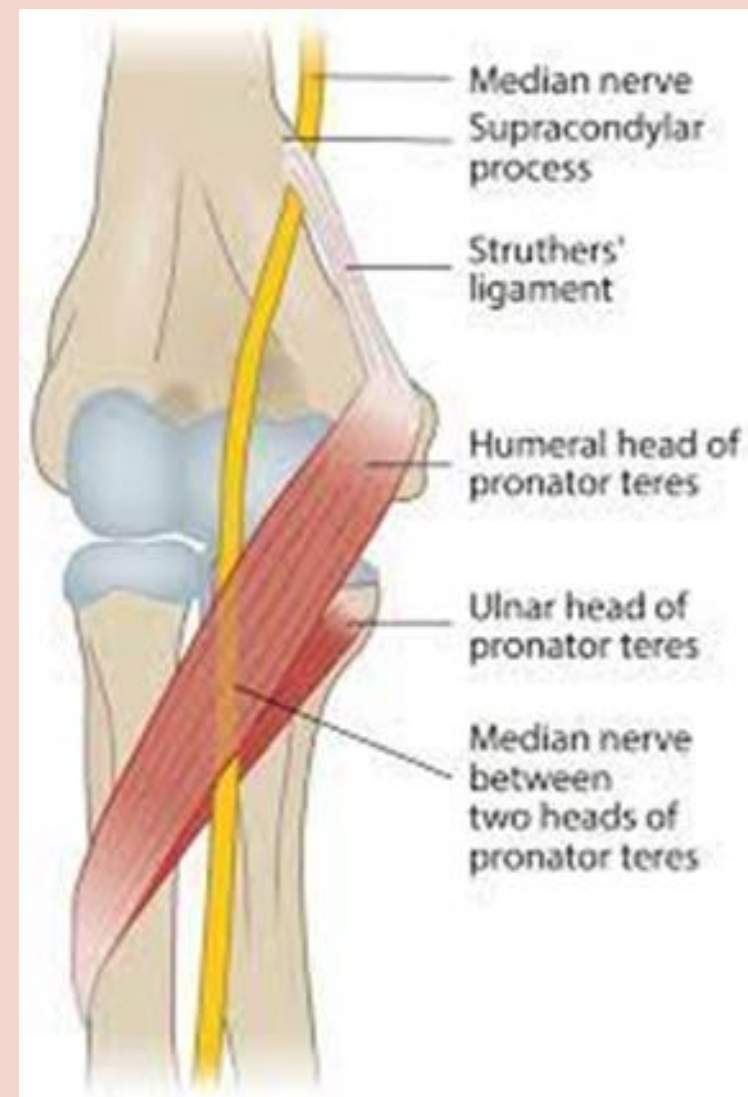
5大分支以上部位的卡压，常常伴有动、静脉的卡压，临床症状较复杂多样，而正中神经卡压是典型的3个半手指麻痛，卡压应多是5大分支以下，即胸小肌以下。



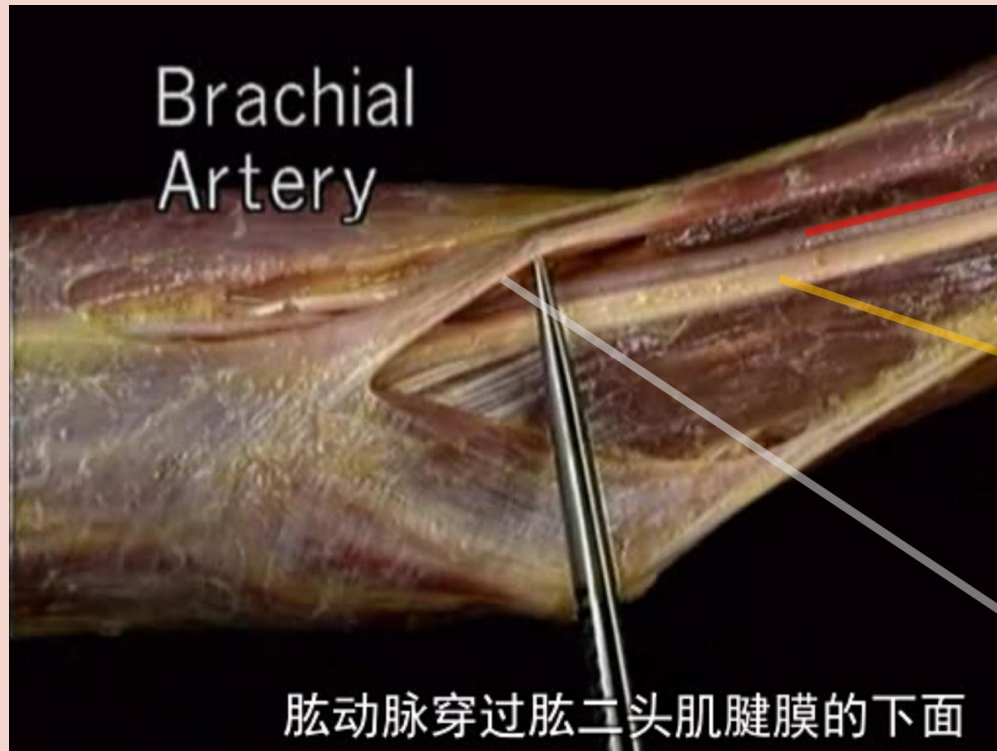
1. Entrapment of Struthers ligament of medial epicondyle of humerus

肱骨内上髁Struthers韧带卡压

- It is entrapped 3~5 cm above the medial epicondyle of the humerus.
 - The ligament not only entraps the median nerve, but also entraps the passing brachial artery, causing the radial artery pulse to weaken or disappear.
 - Pressing here, if the patient feels abnormal aggravation, or performs an action of resisting resistance and flexing the elbow from 120 degrees to 135 degrees, if the radiation sensation becomes aggravated, it can be diagnosed as entrapment at this place.
-
- 它是肱骨内上髁上方3~5cm卡压。
 - 该韧带不仅卡压正中神经，还卡压行经的肱动脉，造成桡动脉搏动减弱或消失。
 - 按压此处，若患者感觉异常加重，或做抗阻屈肘120度到135度的动作，若放射感加重，则可诊断是该处的卡压。



2. Biceps aponeurosis entrapment 肱二头肌腱膜卡压

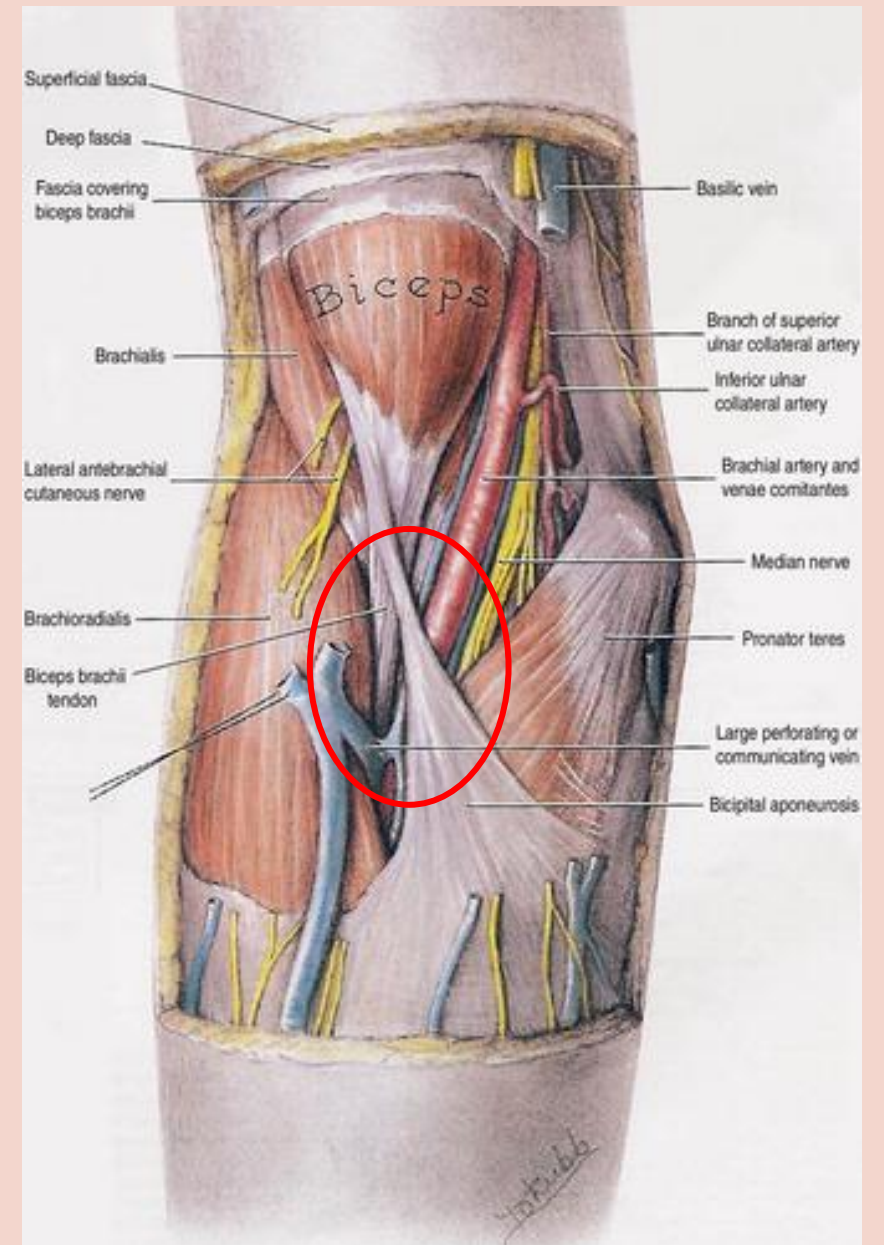


动脉 Arteria
Artery

正中神经
N. Mediano
Median n.

肱二头肌腱膜
Aponeurosis del M.
Biceps Braquial

Biceps aponeurosis





- Do Biceps aponeurosis provocation test, **forearm supination and elbow flexion against resistance**, aggravation of proximal forearm pain, aggravation of hand sensory disturbance, can be diagnosed as median nerve compression at biceps aponeurosis.
- 做肱二头肌腱膜激发试验，**抗阻力前臂旋后和屈肘**，前臂近端疼痛加重者，手部感觉障碍加重者，可诊断为正中神经在肱二头肌腱膜处受压。

3. Pronator teres muscle injury 旋前圆肌综合征

Origins:

Origin of Humeral Head: Immediately above the medial epicondyle of the humerus, common flexor tendon and deep antebrachial fascia.

Origin of Ulnar Head: Medial side of the coronoid process of the ulna.

Insertion:

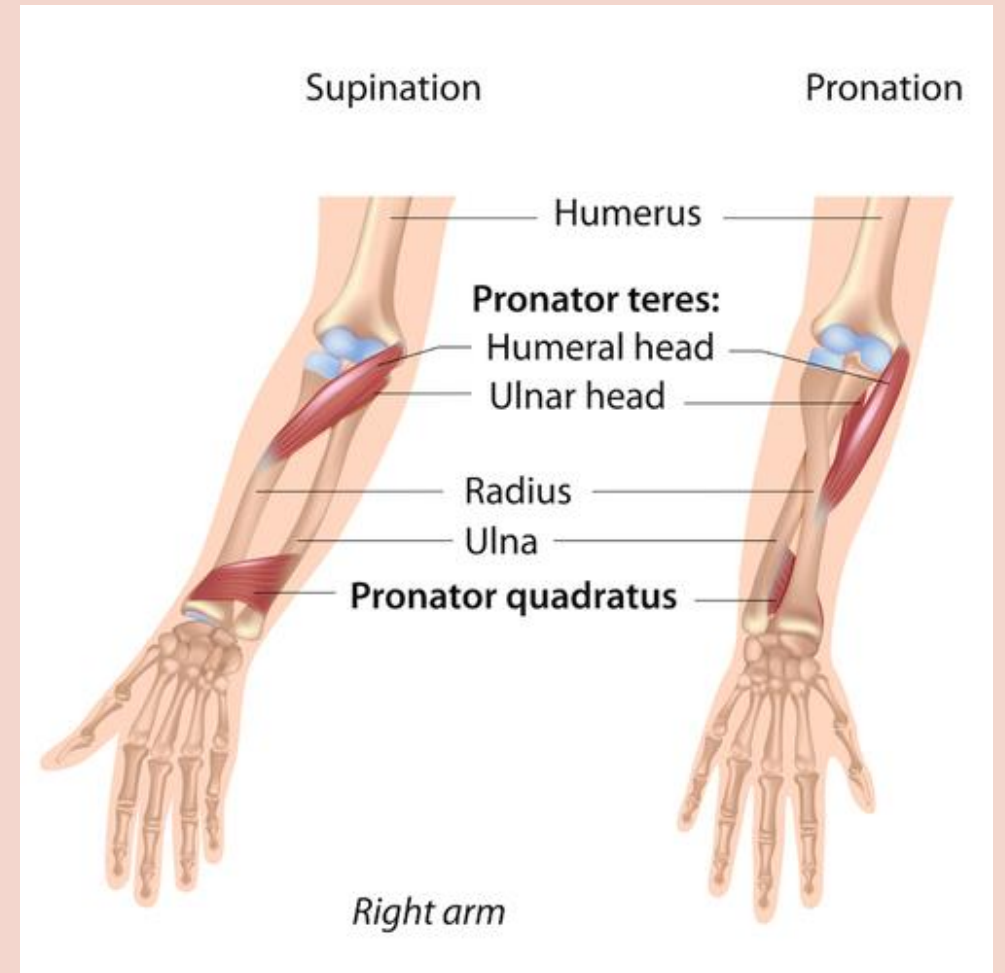
Middle of the lateral surface of the radius.

Nerve: Median nerve, C6 and C7.

Artery: Ulnar artery, anterior recurrent ulnar artery.

Function:

- Pronator teres pronates the forearm and assists in flexion of the elbow joint. It acts synergistically with the pronator quadratus. If the elbow is fully flexed, then the muscle fibers are shortened and less able to produce force.
- Synergist: Pronator Quadratus
- Antagonist: Supinator, Biceps Brachii



- 旋前圆肌浅头起自肱骨内上髁，深头起自尺骨冠突。肌纤维斜向外下，止于桡骨中1/3的外面及后面。两头之间有腱弓形成，两头之间有正中神经通过，旋前圆肌受正中神经支配，作用是使前臂旋前并屈肘。

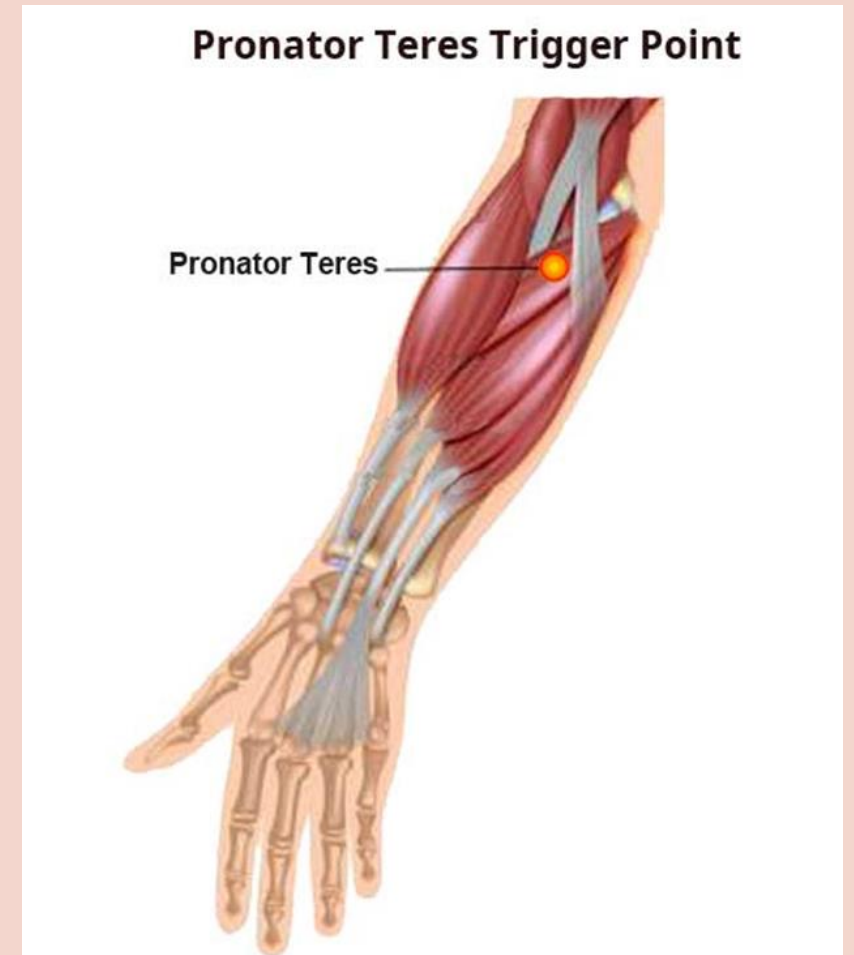
Pronator teres muscle injury 旋前圆肌综合征

Etiology and Pathology :

- Acute or chronic trauma, chronic wear, muscle tear injury, spasm or edema of the forearm with the action of pronation or supination with flexion that compresses the Median nerve.
- Repetitive activities of pronation and supination with effort, as well as stylists, violinists, etc., generating thickening of the tendinous arches of the two heads of the Pronator teres m.
- Scar, adherence, contracture, inflammation, irritation or compression on the Median nerve.
- Contracture or tightness that forms between the Pronator Teres m. and Superficial Flexor of the fingers.

【病因病理】

外力撞击前臂掌侧，或握拳突然内旋屈曲前臂，使旋前圆肌浅头拉伤，水肿、痉挛刺激正中神经。手指与前臂反复屈曲内旋工作的人，如理发师、小提琴师、钢琴师等。反复内旋前臂，造成旋前圆肌慢性损伤，使其肌腹痉挛或肥厚，诱发周围组织，炎性水肿刺激正中神经。旋前圆肌、指浅屈肌弓之间形成异常纤维束带，在旋前圆肌两头之间，指浅屈肌起点边缘处，常有腱性硬韧组织，局部瘢痕形成，局部肿物等，压迫神经而发病。



Pronator teres muscle injury 旋前圆肌综合征

Clinical manifestations:

1. Chronic condition, beginning with loss of strength in the fingers, loss of fine activities.
2. Pain in the fingers, palm and forearm, aggravated by activities.
3. Burning or stinging sensation in the region of the palms or in the index and middle fingers.
4. Few patients manifest seizure in the wrist and fingers.
5. Numbness, paresthesia, weakness or muscular atrophy of the 3 and a half radial fingers.
6. Dry skin or cold hands.

【临床表现】

一般为慢性发作，患者可先觉手指无力，不能做精细动作，逐渐感到前臂和手指疼痛，可**向掌指放射**，劳动时疼痛加重。有时感觉**手掌面**，**食中指**有针刺或烧灼感，部分患者甚至 可以出现腕指抽搐。有的患者**前臂手掌、桡侧三个半手指麻木无力**，肌肉萎缩，失手落物，患肢喜暖怕凉皮肤粗糙，少汗。

Pronator teres muscle injury 旋前圆肌综合征

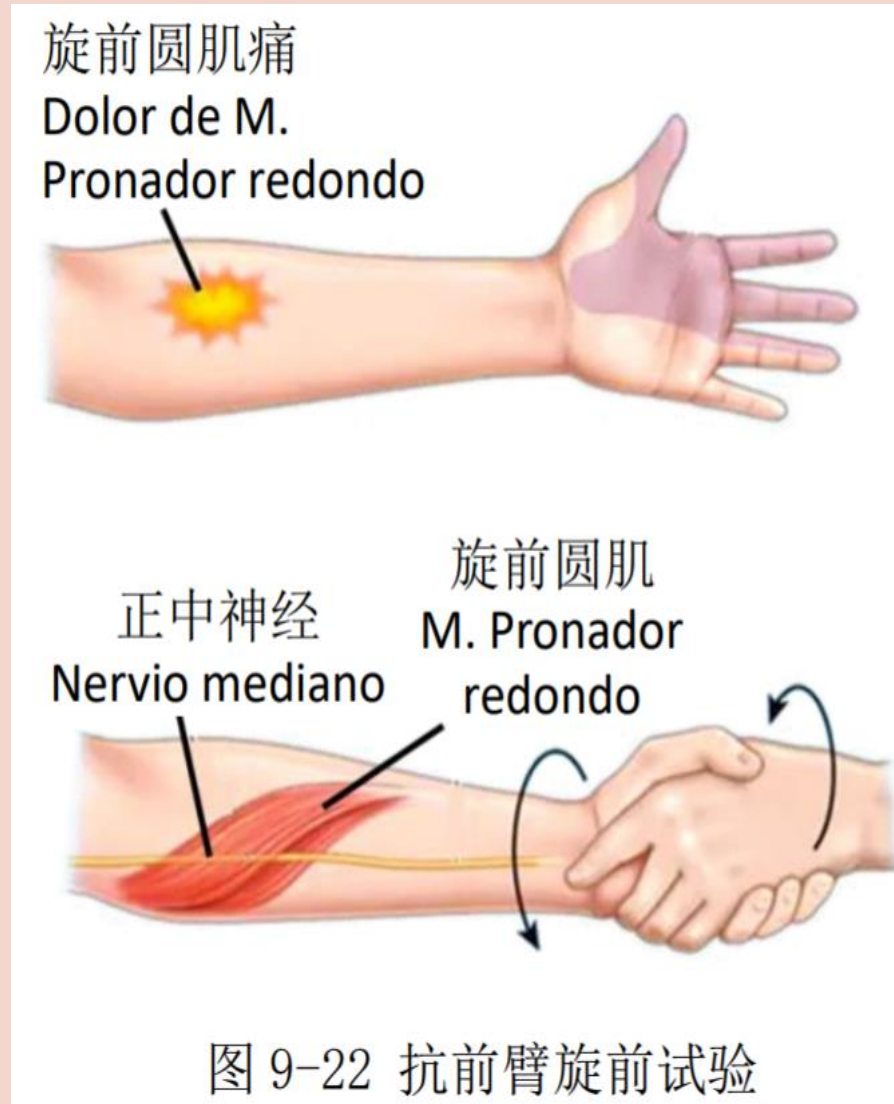
Diagnosis

1. History of trauma or chronic wear.
2. Pain, paresthesia or weakness in the innervation of the Median N. as the region of the forearm, palm and fingers.
3. Positive Tinel test in the supero-medial $\frac{1}{3}$ of the forearm, where it is located in Pronator teres m.
4. Positive test in pronation and forearm flexion resistance.
5. Electromyographic study indicates decreased conduction in the forearm, especially in the Pronator teres m.

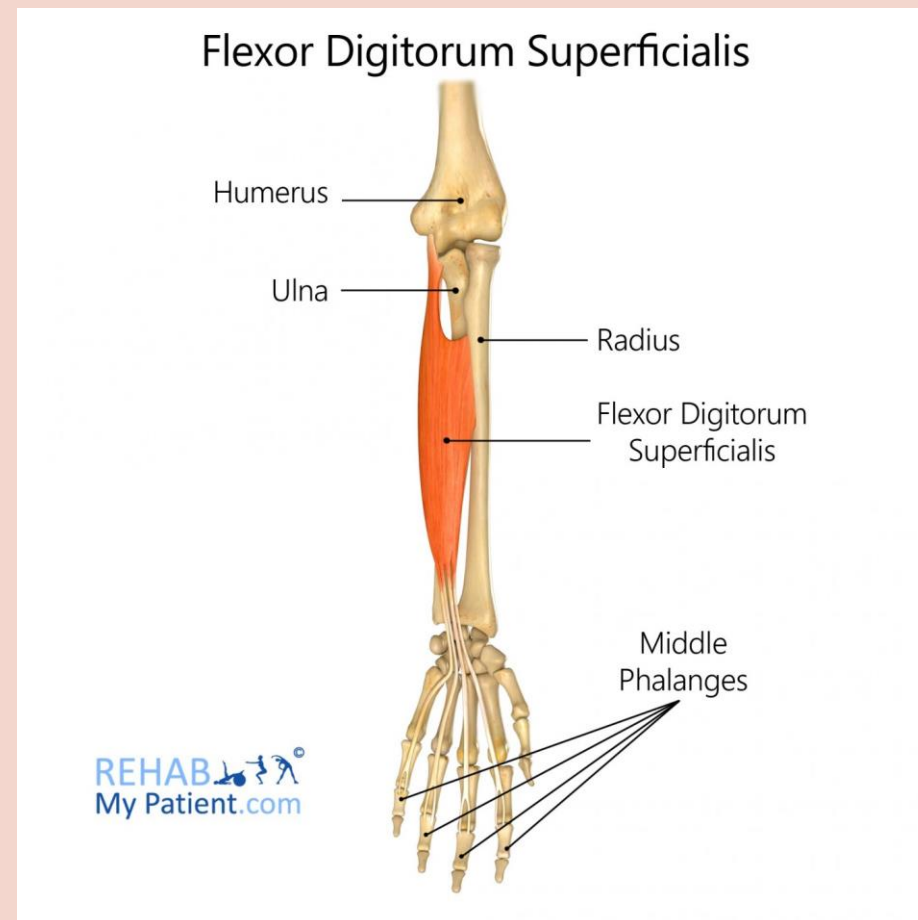
【诊断依据】

- (1) 外伤史、劳损史。
- (2) 正中神经支配的手内在肌和前臂肌肉均感无力，痛觉障碍。
- (3) 前臂掌侧上 $\frac{1}{3}$ 处旋前圆肌及其周围压痛、变硬或明显肥大。该处 Tinel 征阳性。
- (4) 抗前臂旋前和屈腕运动可使症状加重（见图 9-22）
- (5) 电生理检查显示前臂运动神经从旋前圆肌处开始传导速度下降。

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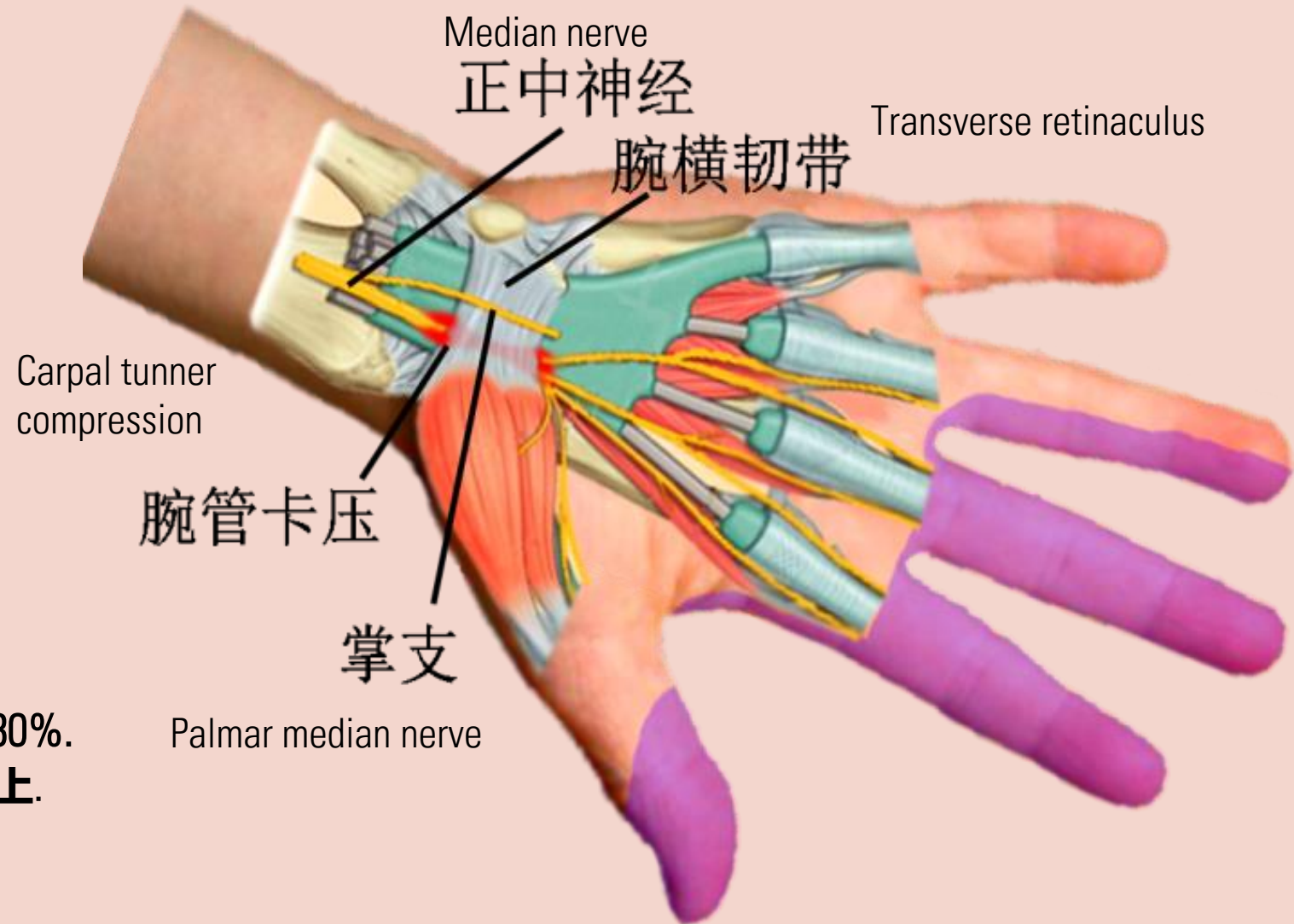
4. Flexor digitorum superficialis injury 指浅屈肌损伤



- Do flexor digitorum superficialis tendon arch stimulation test: flexion of the proximal flexor digitorum superficialis of the middle finger against resistance causes aggravated pain and paresthesia in the proximal forearm, which means that the median nerve is compressed at the flexor digitorum superficialis arch.
- 做指浅屈肌腱弓激发**试验**：抗阻力中指近侧指浅屈肌屈曲，使**前臂近端疼痛加重且感觉异常加重者**，为正中神经在指浅屈肌弓处受压。

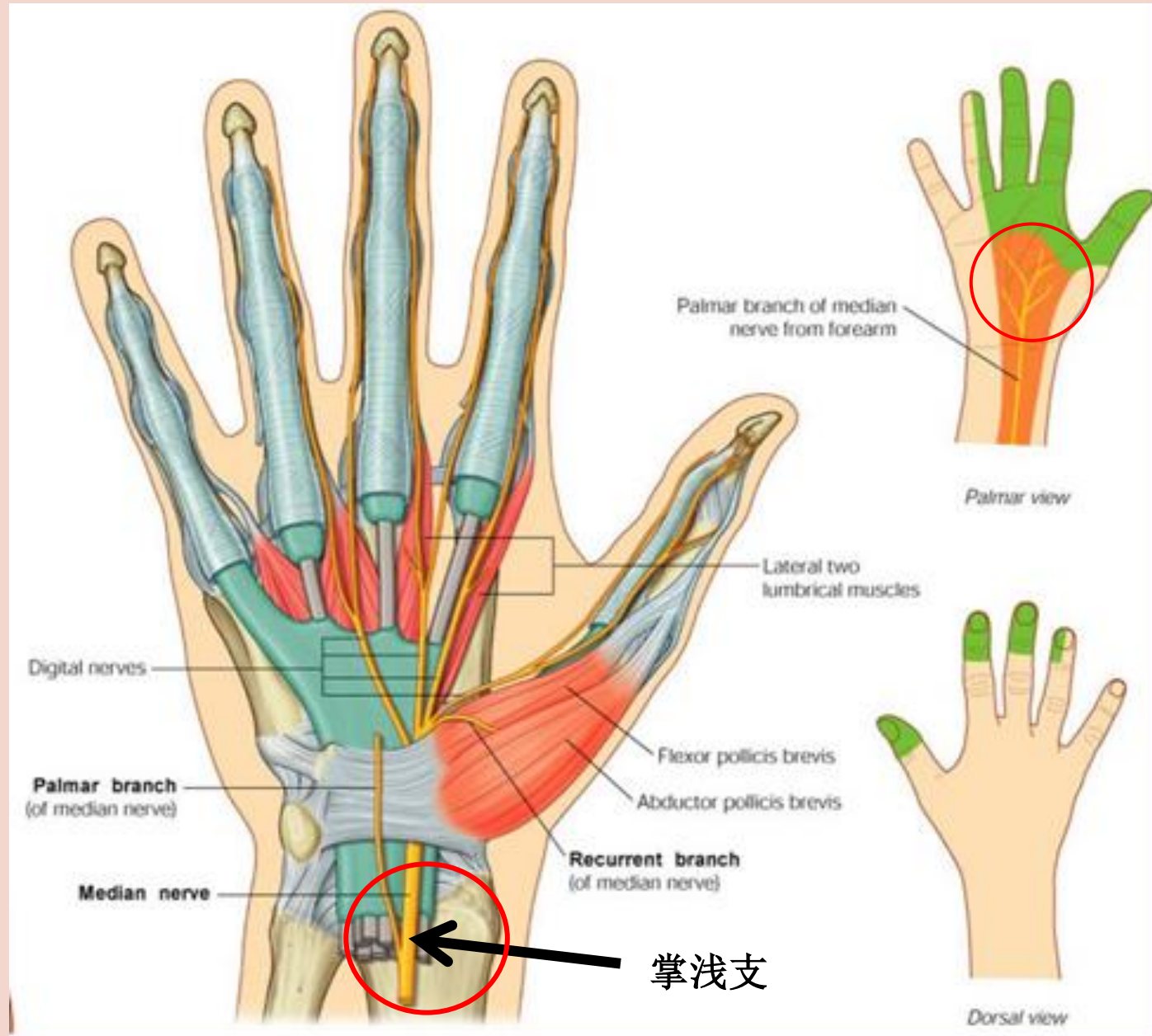


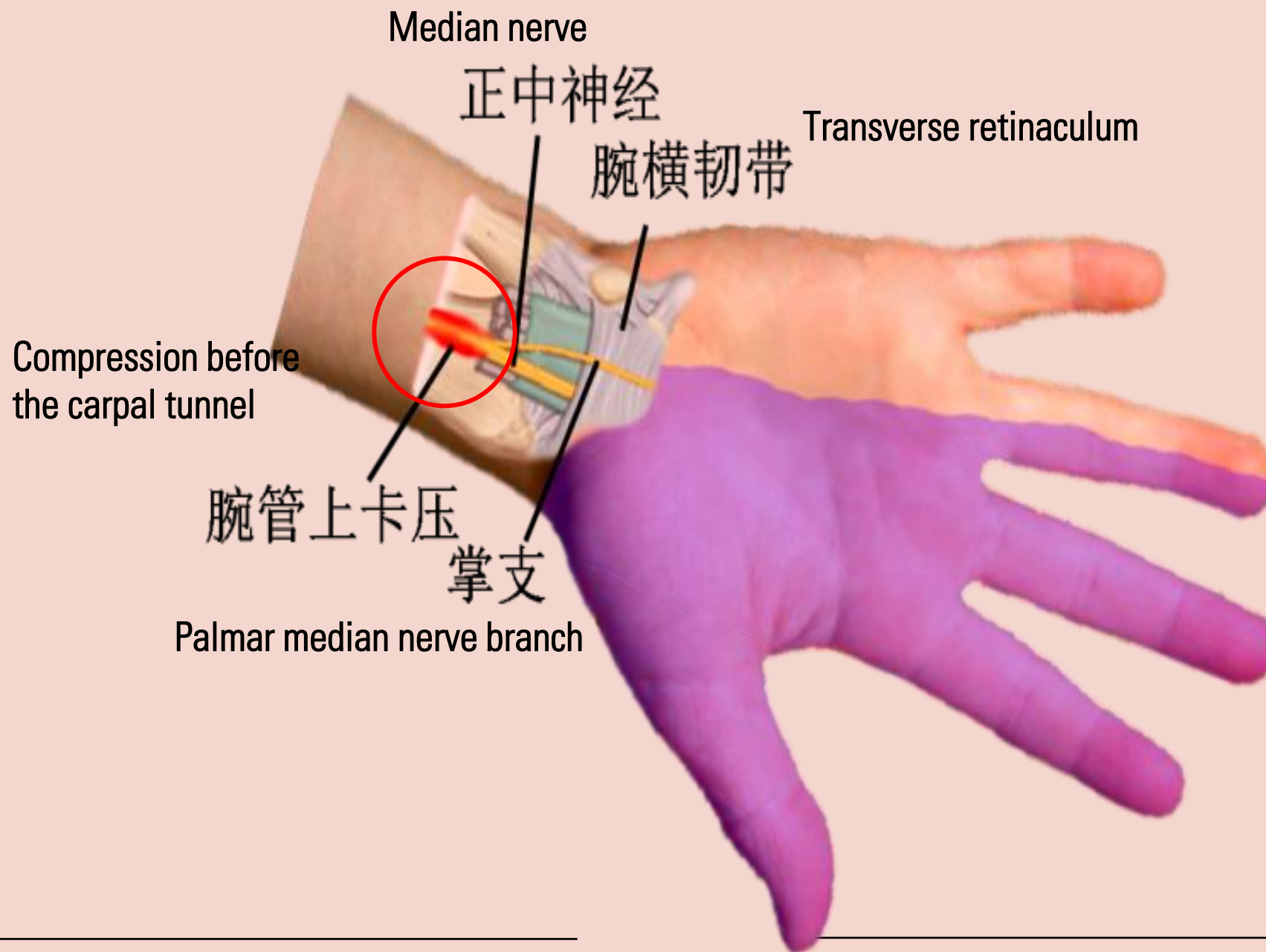
5. Carpal tunnel syndrome 腕管综合症



Carpal tunnel syndrome: the most common, accounting for more than 80%.
腕管综合症：最常见，占80%以上。

- **Compression before the carpal tunnel:**
 - Entrapment of the palmar cutaneous branch of the median nerve.
 - **腕管前:**
 - 正中神经掌皮支的卡压.
-
- **Diagnosis:**
 - Skin **paresthesia** in thenar and palmar area.
 - **诊断:**
 - 大鱼际的皮肤感觉**异常**.





Compression of the median
nerve **before** the carpal tunnel
腕管前卡压



Compression of the median nerve
in the carpal tunnel
腕管卡压



Differentiation between Carpal Tunnel Syndrome and Pronator teres m. syndrome

■ Carpal Tunnel Syndrome:

1. Paresthesia or numbness of the 3 and middle radial fingers of the hand.
2. Increased numbness during sleep, improves with changing posture.
3. Initial numbness is localized to the tip of the middle or ring finger.

■ Round Pronator Syndrome:

1. Absence of pain at night.
2. Carpal nerve conduction is normal.
3. Paresthesia in the palmar area.

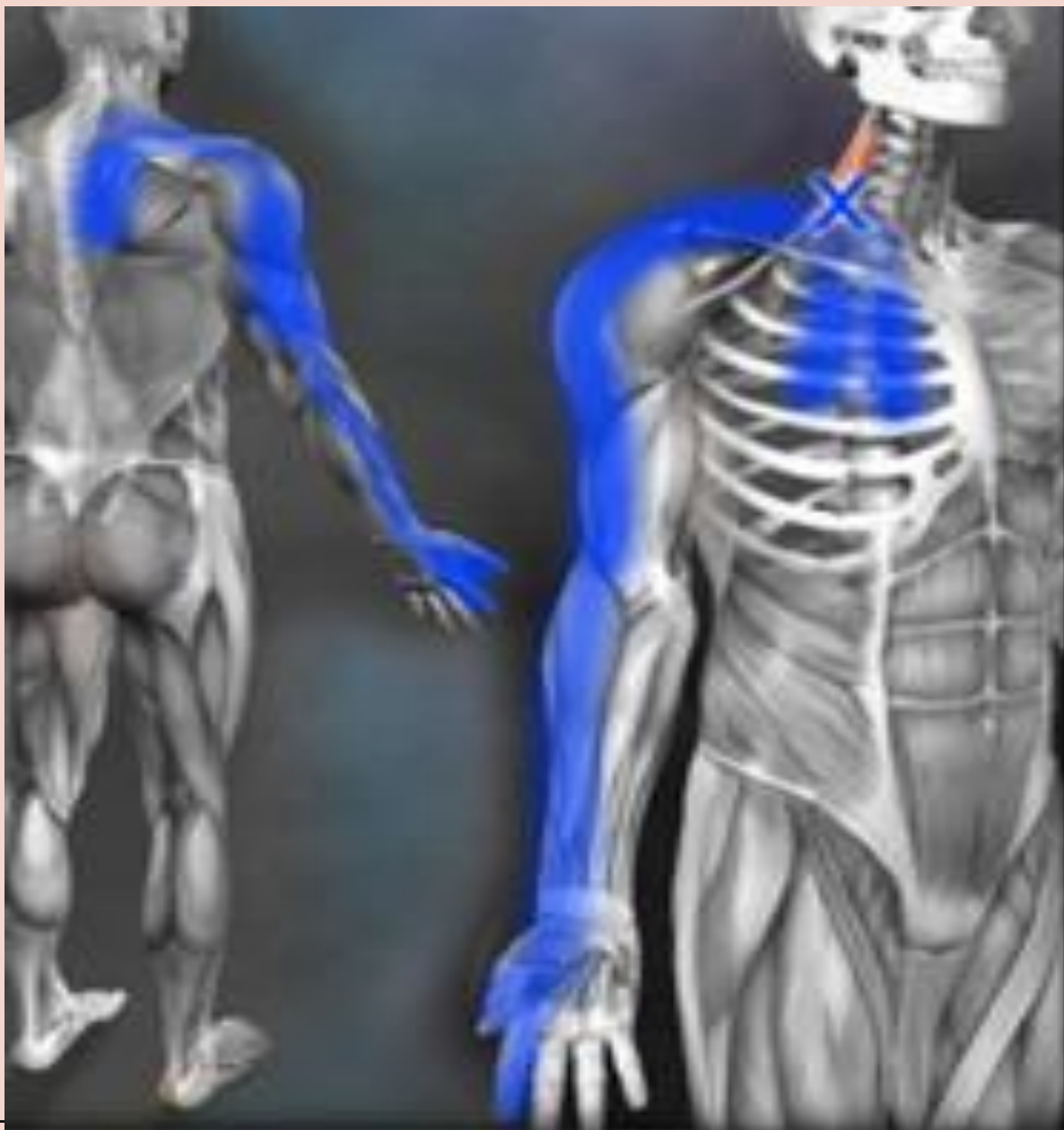
腕管综合征与旋前圆肌综合征鉴别诊断:

腕管综合征:

- 1、拇、食、中、和环指桡侧半感觉异常、麻木。
- 2、**夜间麻木**是腕管综合征的首发症状，变换上肢姿势可缓解。
- 3、部分患者早期**只感中指或中环指尖麻木**。

旋前圆肌综合征:

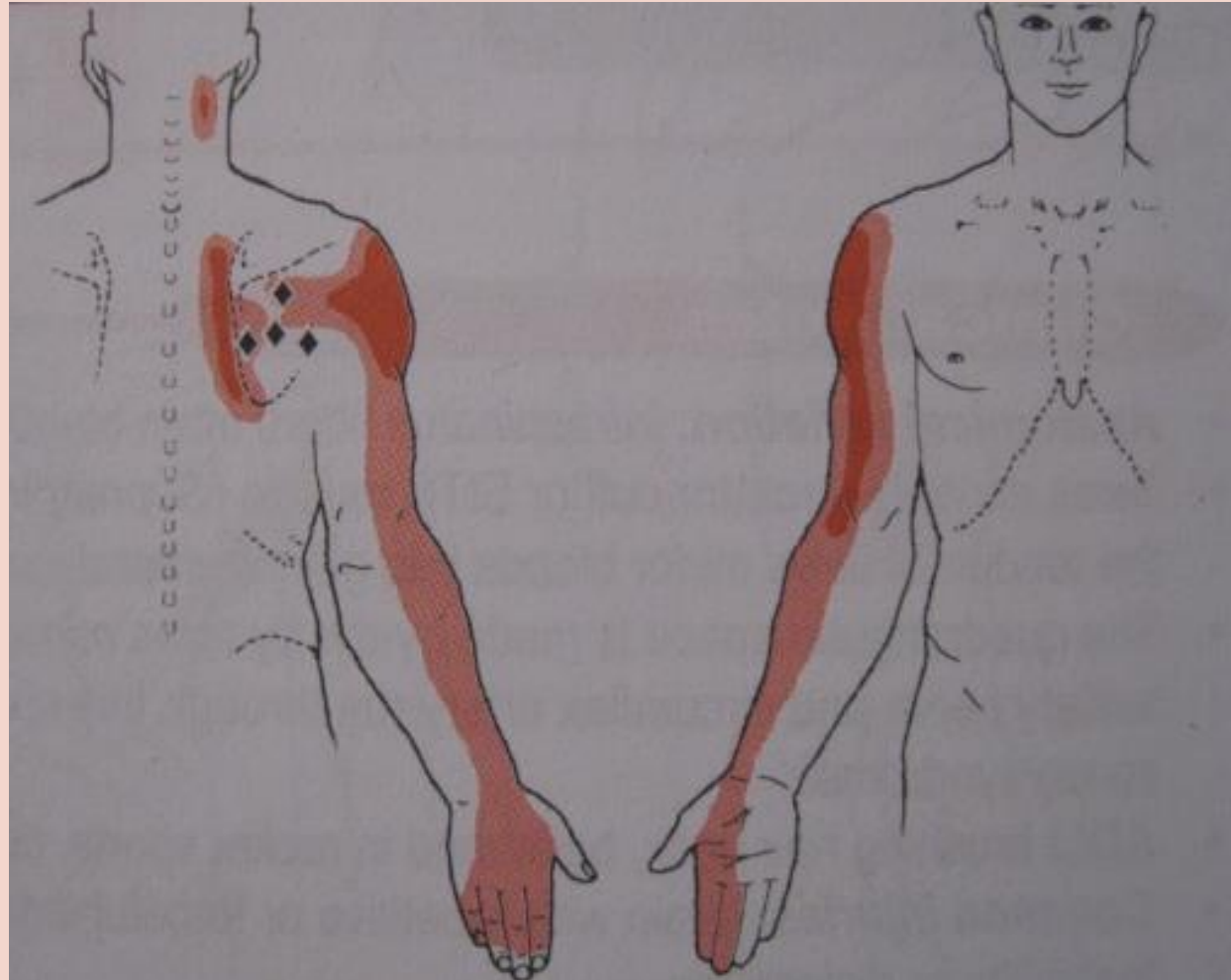
- 1、**无夜间麻疼**
- 2、腕部神经的传导速度正常。
- 3、**掌部感觉减退**。



**Trigger point of
Scalenes muscles**
斜角肌痛点反应区

Trigger point of Infraspinatus muscle

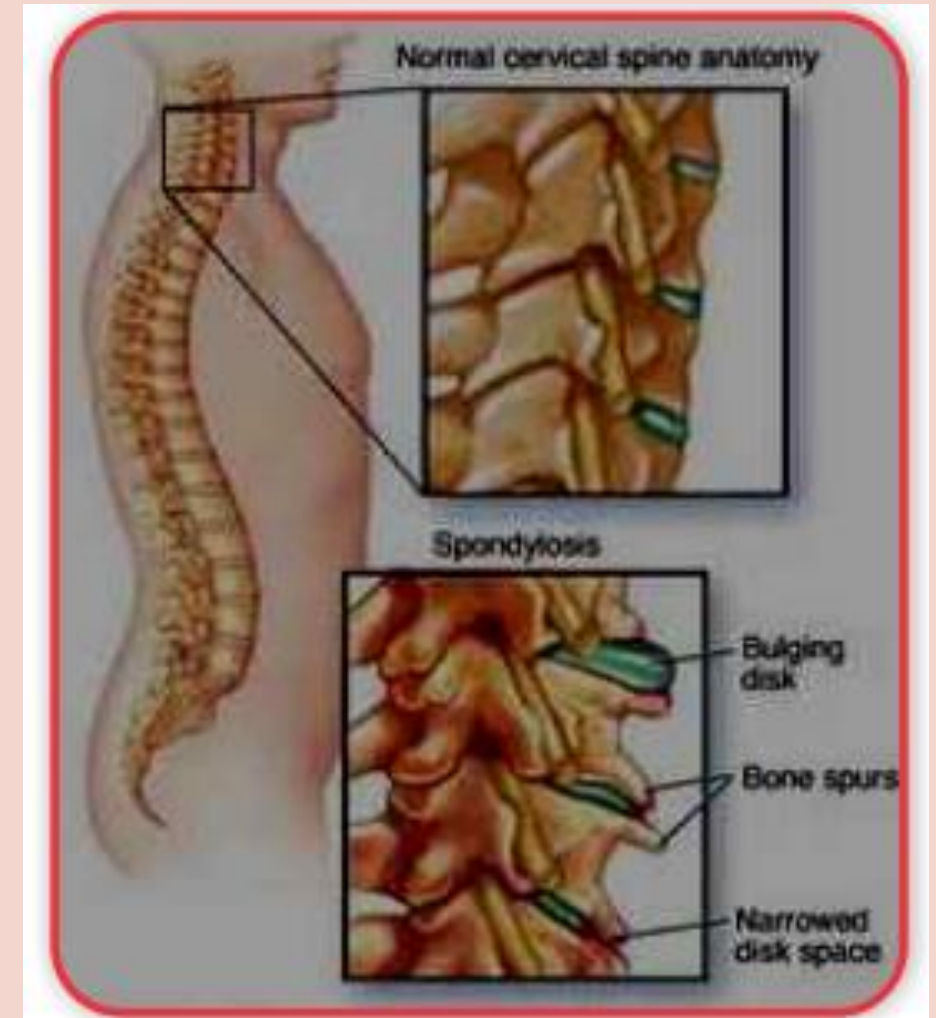
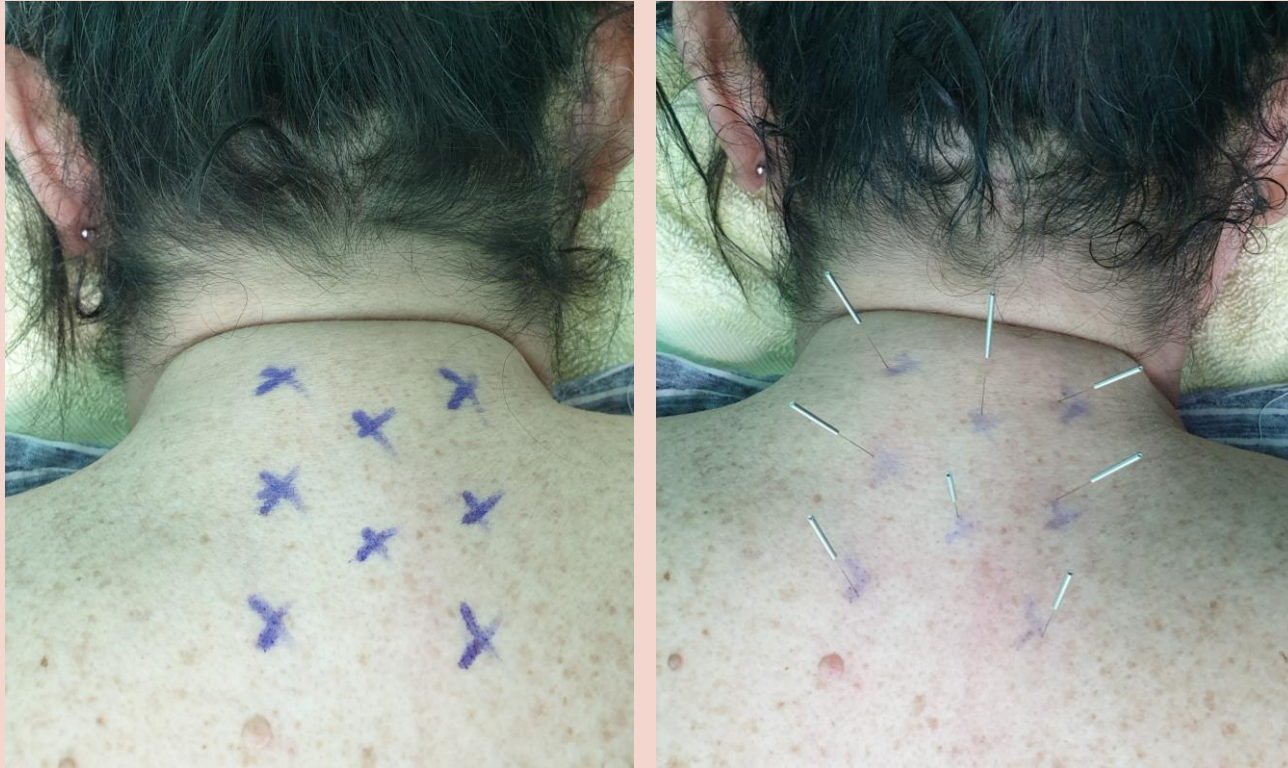
岗下肌痛点反应区

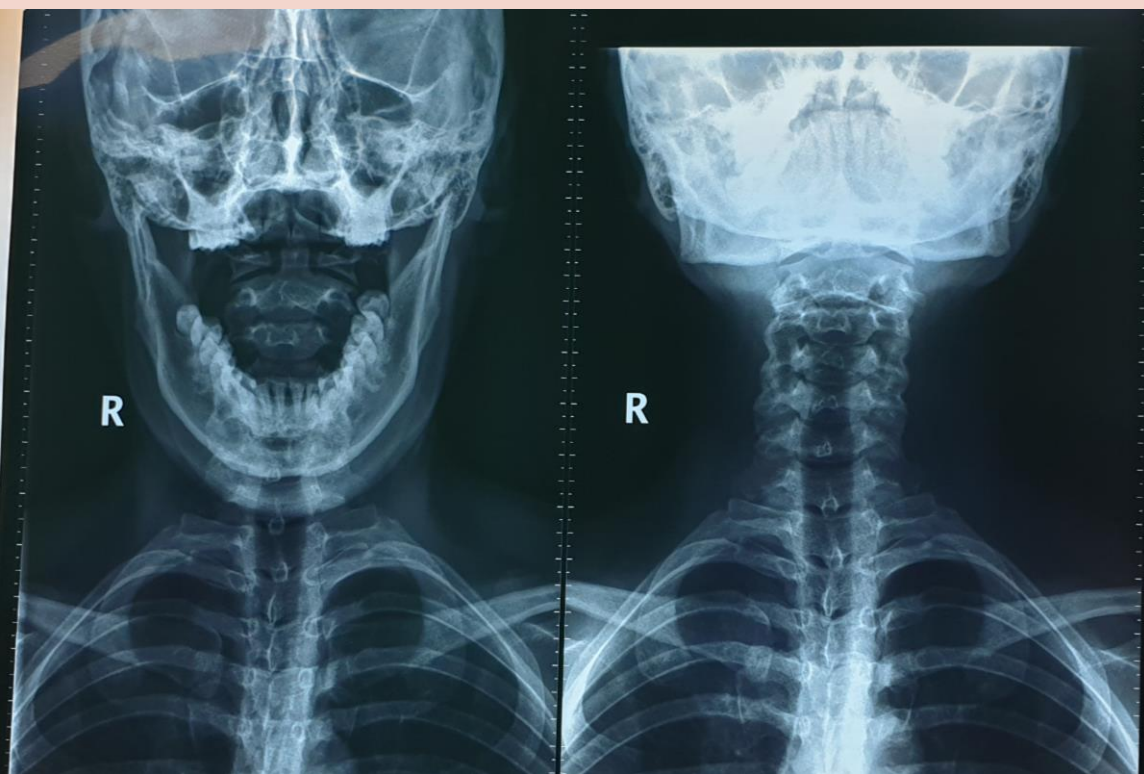


Treatment with Acupuncture

1. Cervical Spondylosis 颈椎病

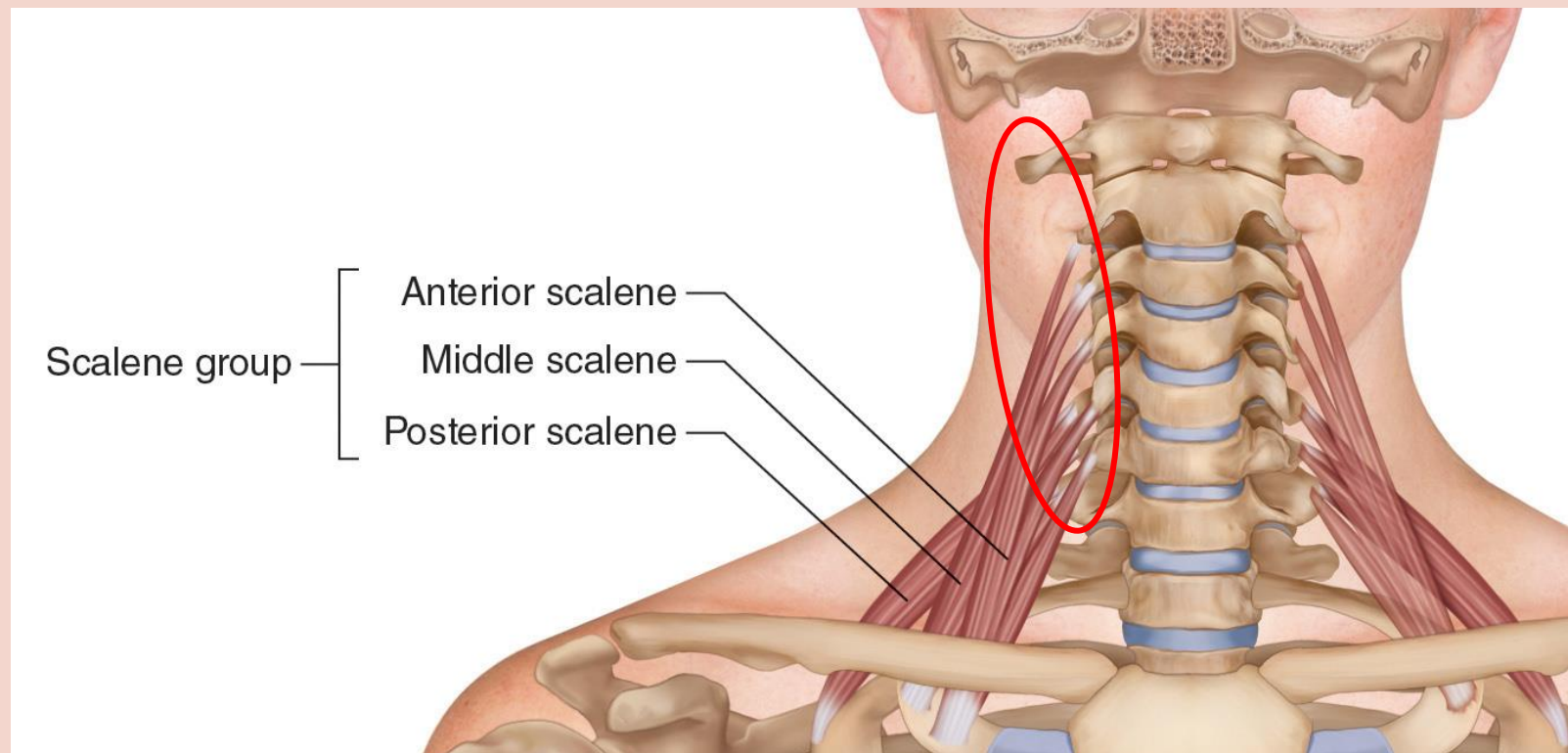
- ❖ Jiaji points of C5 – T1 or T2.
- ❖ Interespinal spaces 1 or 2 points.





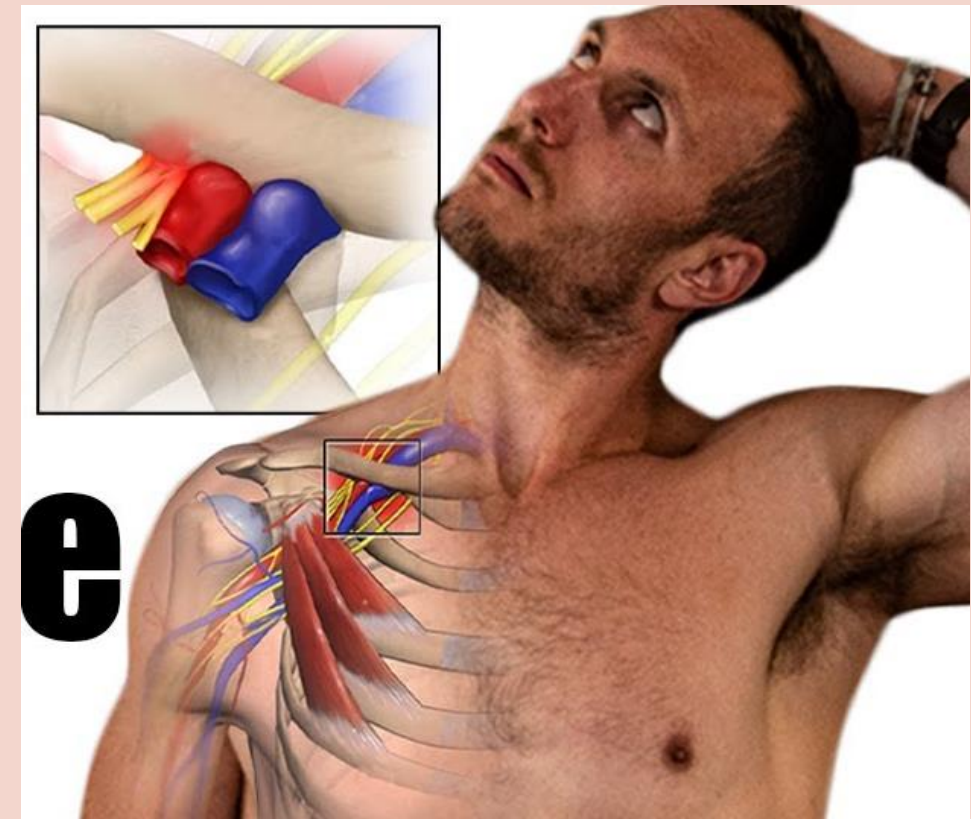
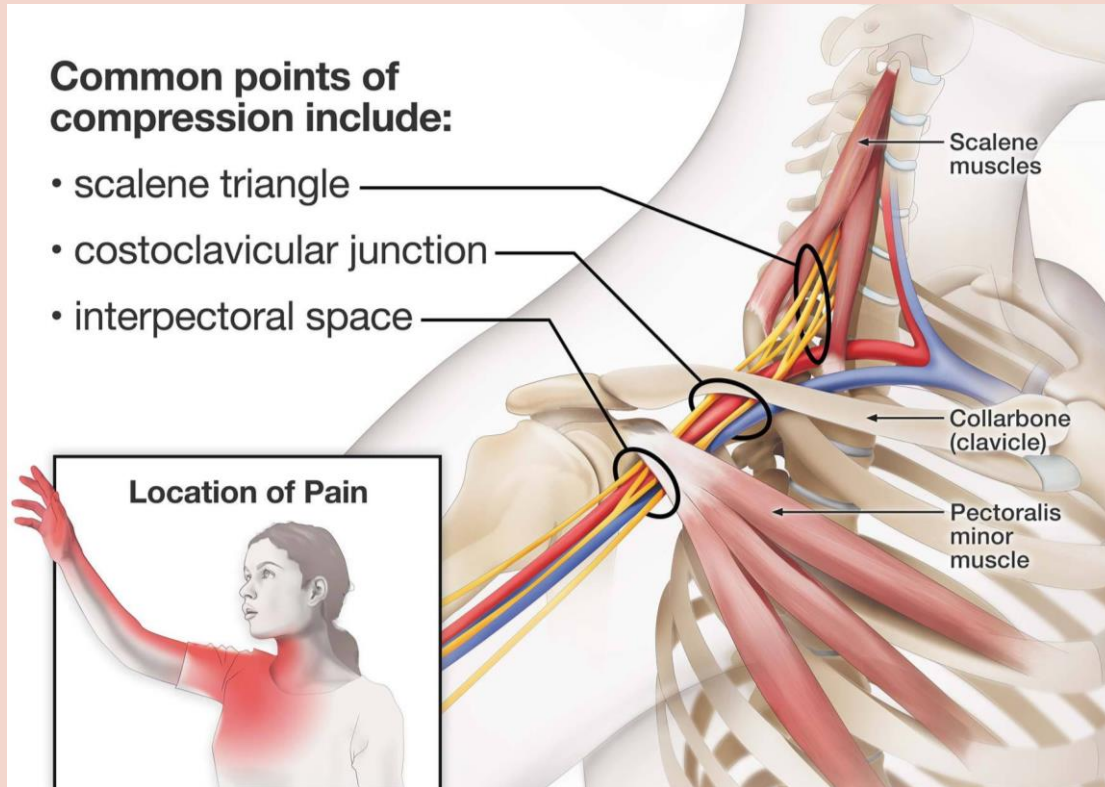
2. Scalene muscle injury斜角肌综合征

❖ Transverse process from C1 – C5 with massage.

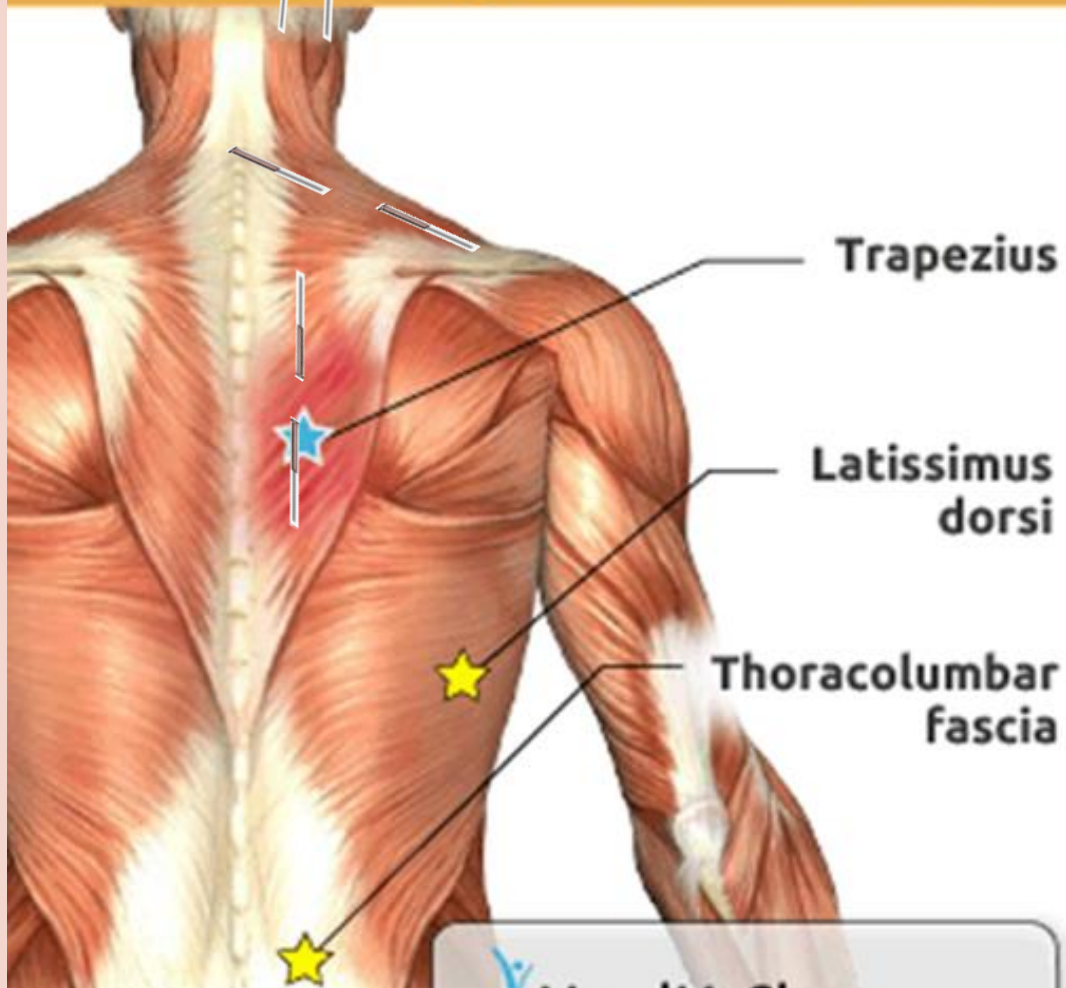


3. Thoracic outlet syndrome 胸廓出口综合征

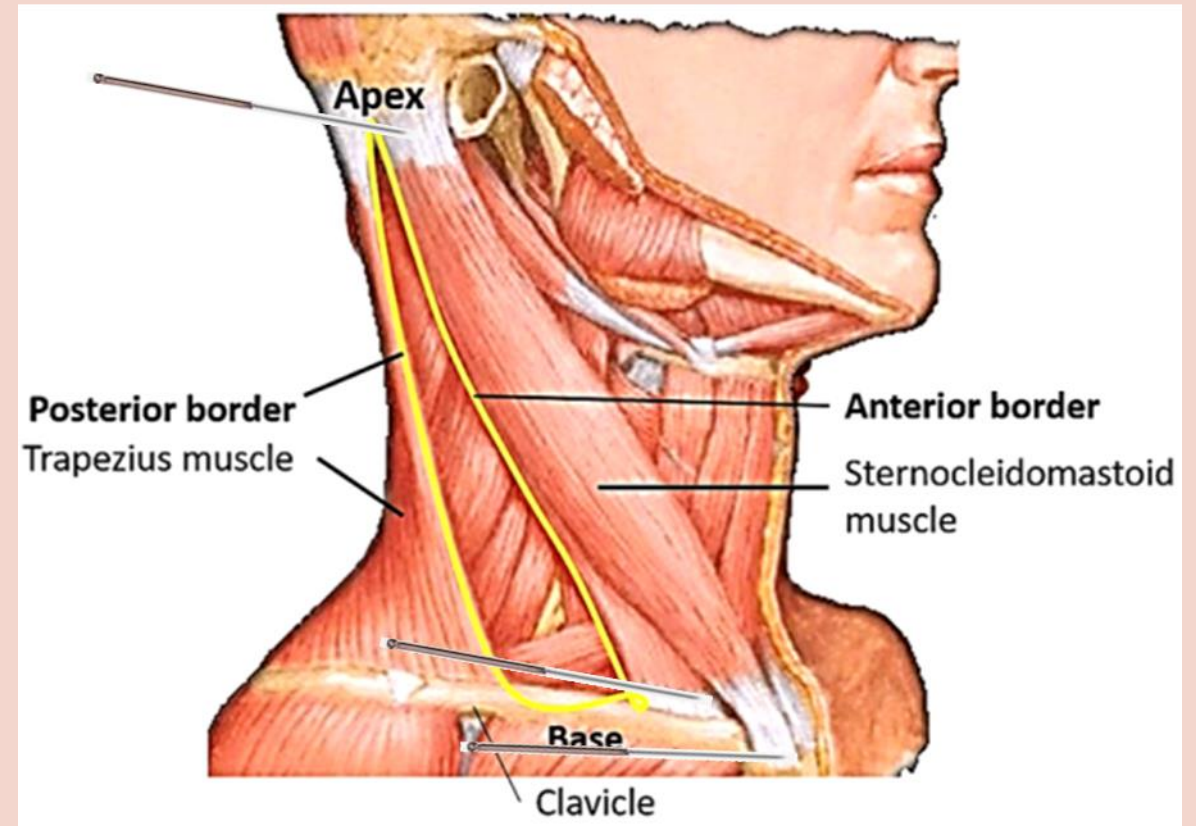
- ❖ Relieve the following muscles: subclavius, trapezius, scalenes, sternocleidomastoid, pectoralis major and minor, levator scapula, etc.



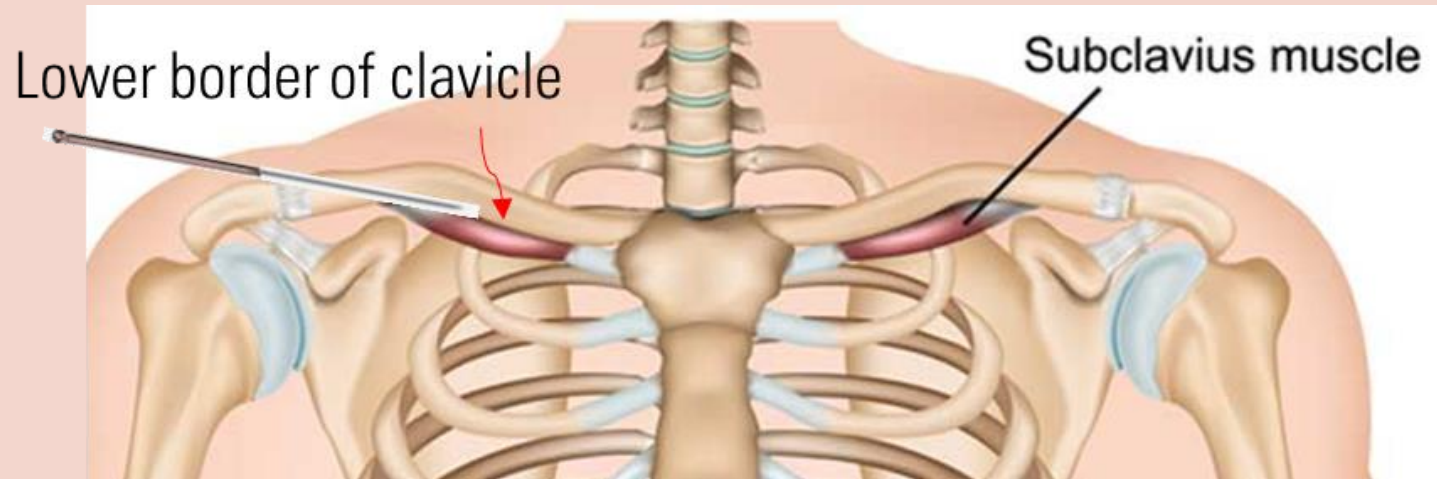
Upper Back Strain In the Trapezius Muscle



Sternocleidomastoid m.

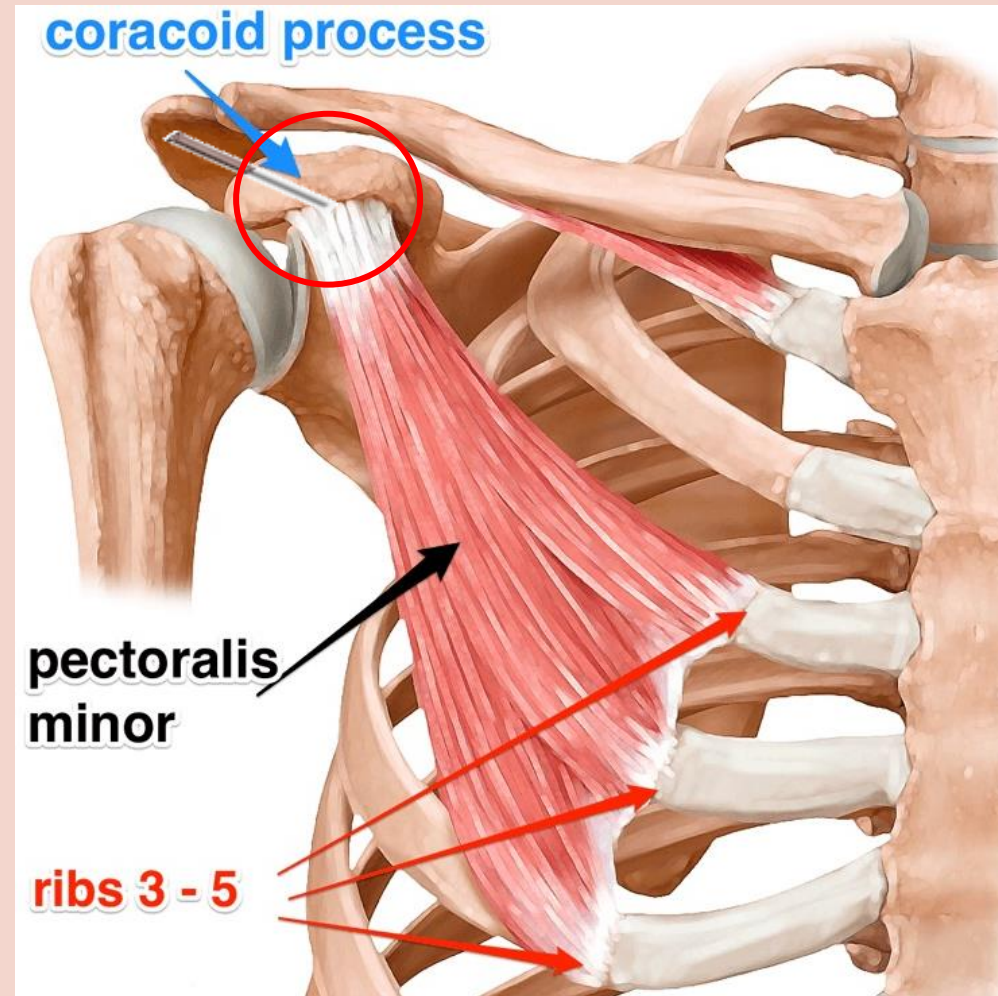


4. Subclavian muscle injury 锁骨下肌损伤

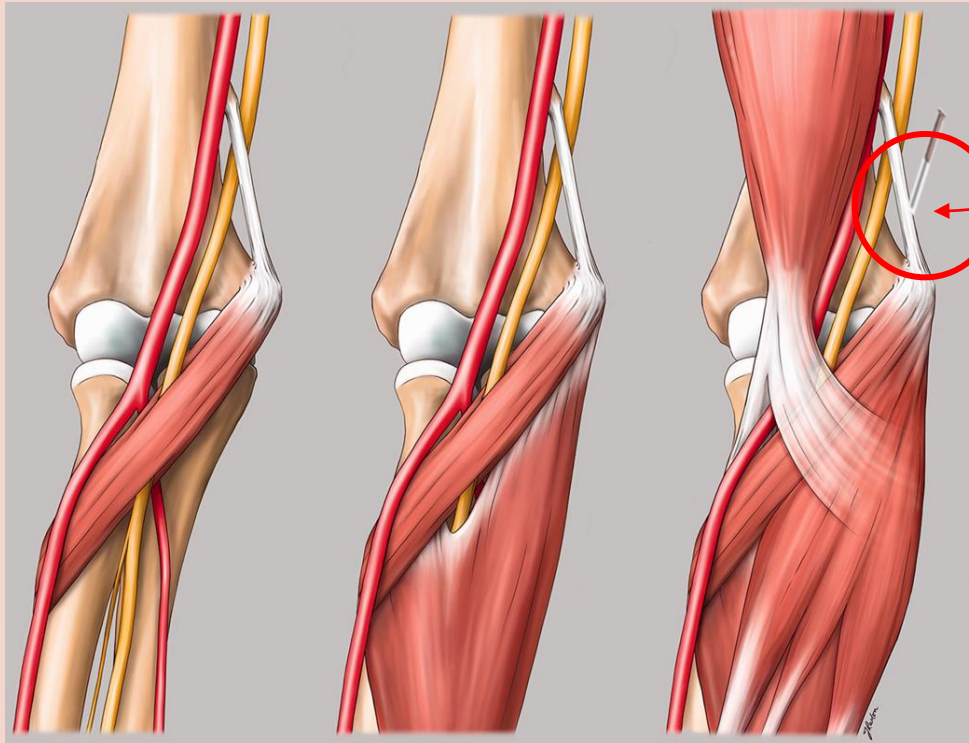


5. Pectoralis minor muscle injury (coracoid process point)

胸小肌綜合徵

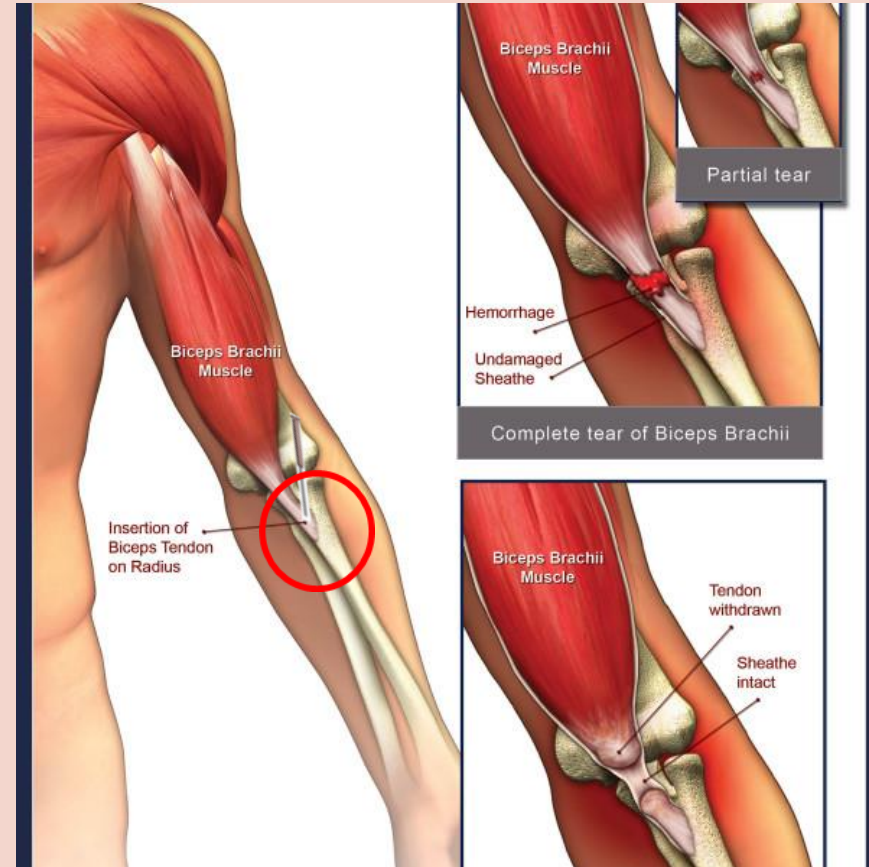
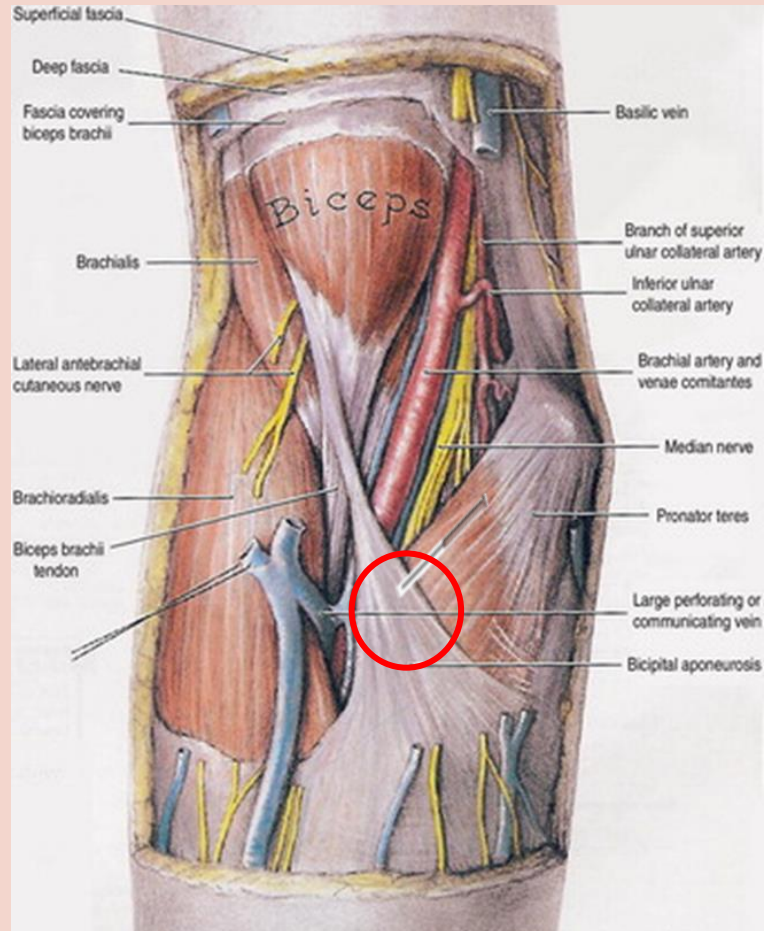


6. Entrapment of Struthers ligament of medial epicondyle of humerus 肱骨内上髁Struthers韧带卡压

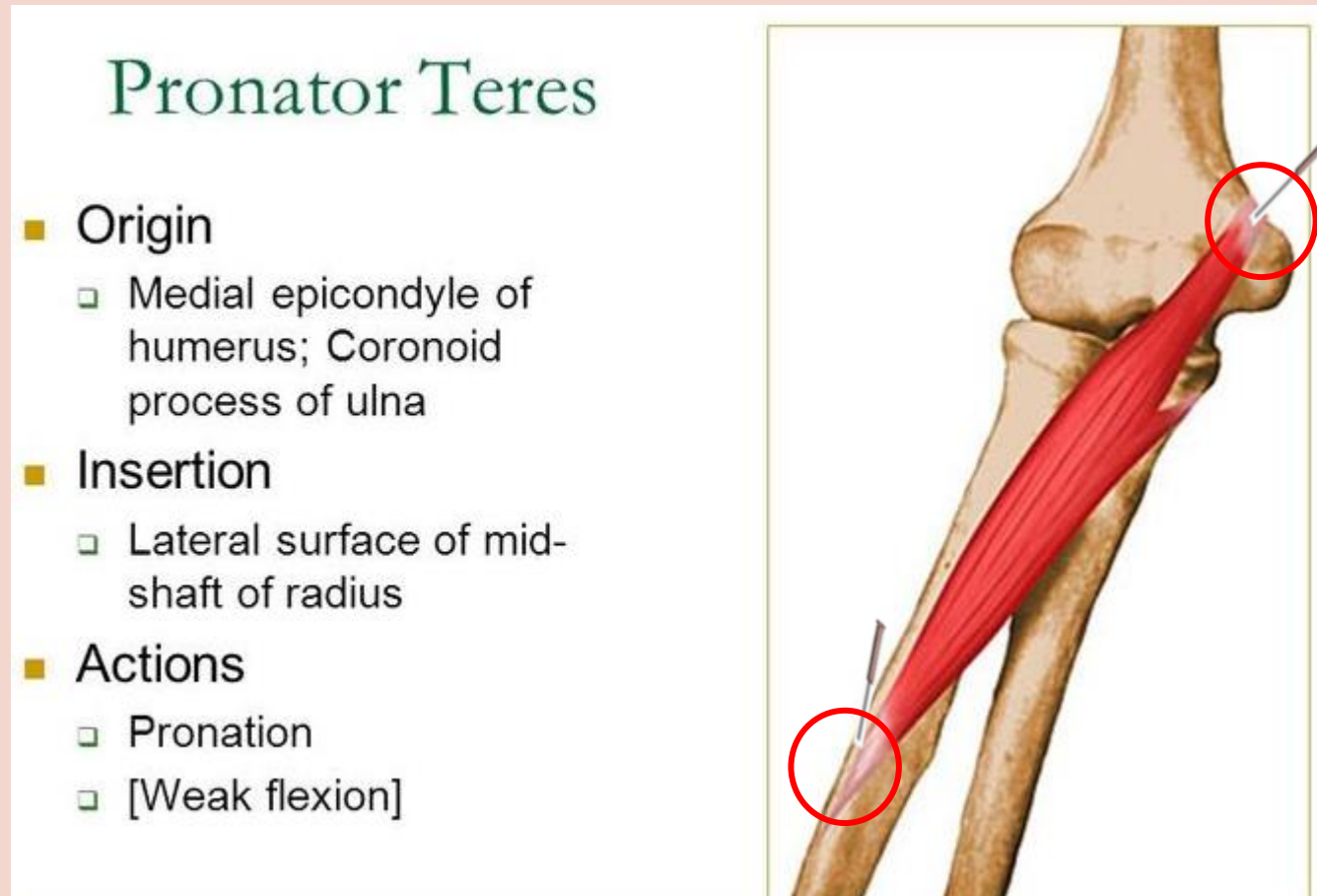


- ❖ It is entrapped 3~5 cm above the medial epicondyle of the humerus.

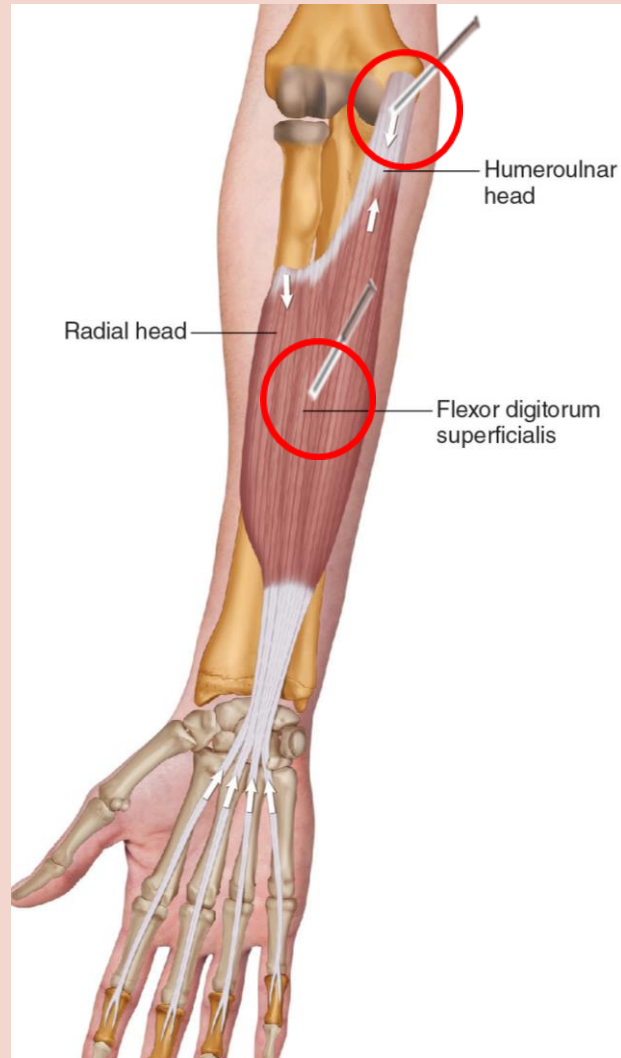
7. Biceps aponeurosis entrapment 肱二头肌腱膜卡压



8. Pronator teres muscle injury 旋前圆肌综合征



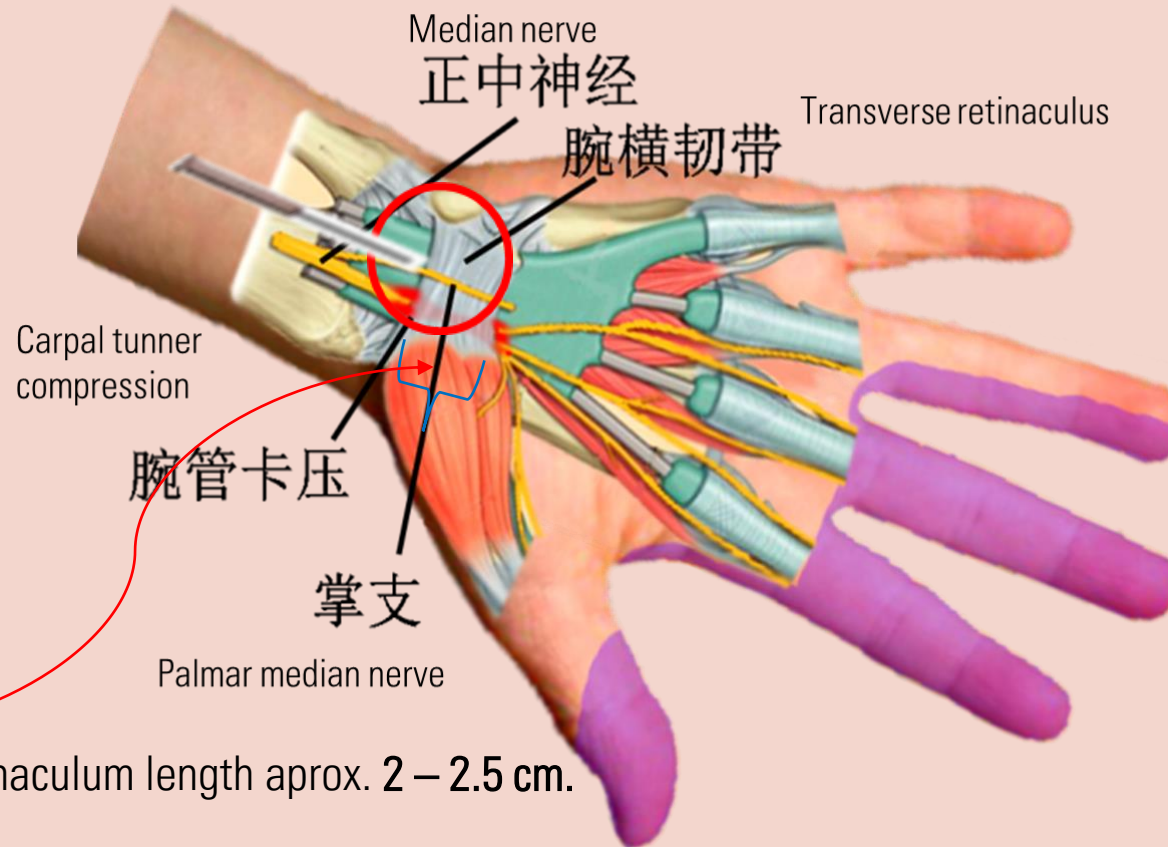
9. Flexor digitorum superficialis injury 指浅屈肌损伤



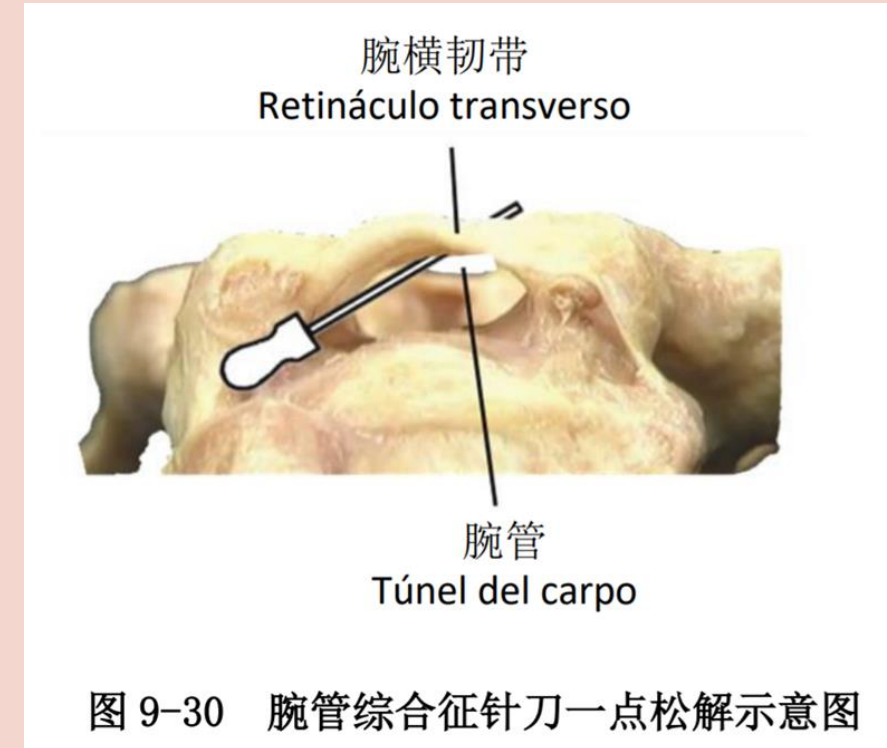
Median Nerve
Compression

10. Carpal tunnel syndrome 腕管综合症

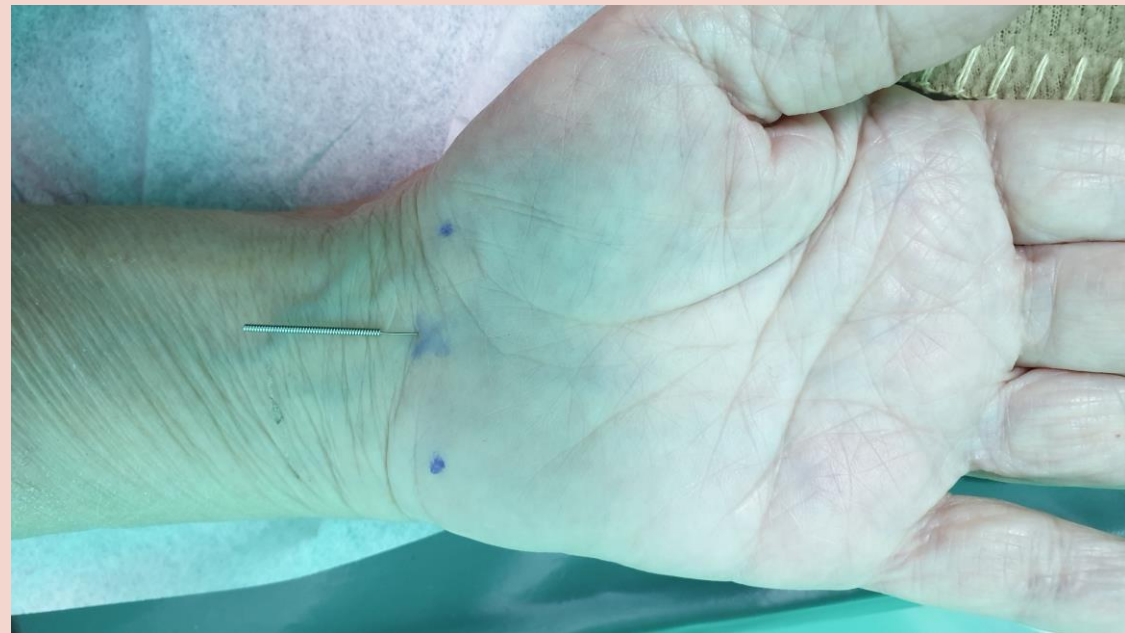
❖ PC7 Daling point, with oblic method, 2 cm length.



- Transvers retinaculum length aprox. 2 – 2.5 cm.



Videos of cases



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4. Donald C. Rizzo, Fundamentals of Anatomy & Physiology, International Edition, 3rd, Edition, Cengage Learning Inc. 2009.
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Thank you

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