

# The module: Musculo-Skeletal System

Session: 2

## Brachial plexus

**Module staff:** Dr.Falih Waheed

Dr.Nawal Mustafa

Dr.Kalil Ibrahim

Dr.Ahmed Ibrahim

Dr.Waleed Jawad

Dr.Raed Jasim

Dr.Rafid Mousa

Dr.Ahmed Khalaf

# The module: Musculo-Skeletal System

Session: 2

## Brachial plexus

**Module staff:** Dr.Falih Waheed

Dr.Nawal Mustafa

Dr.Kalil Ibrahim

Dr.Ahmed Ibrahim

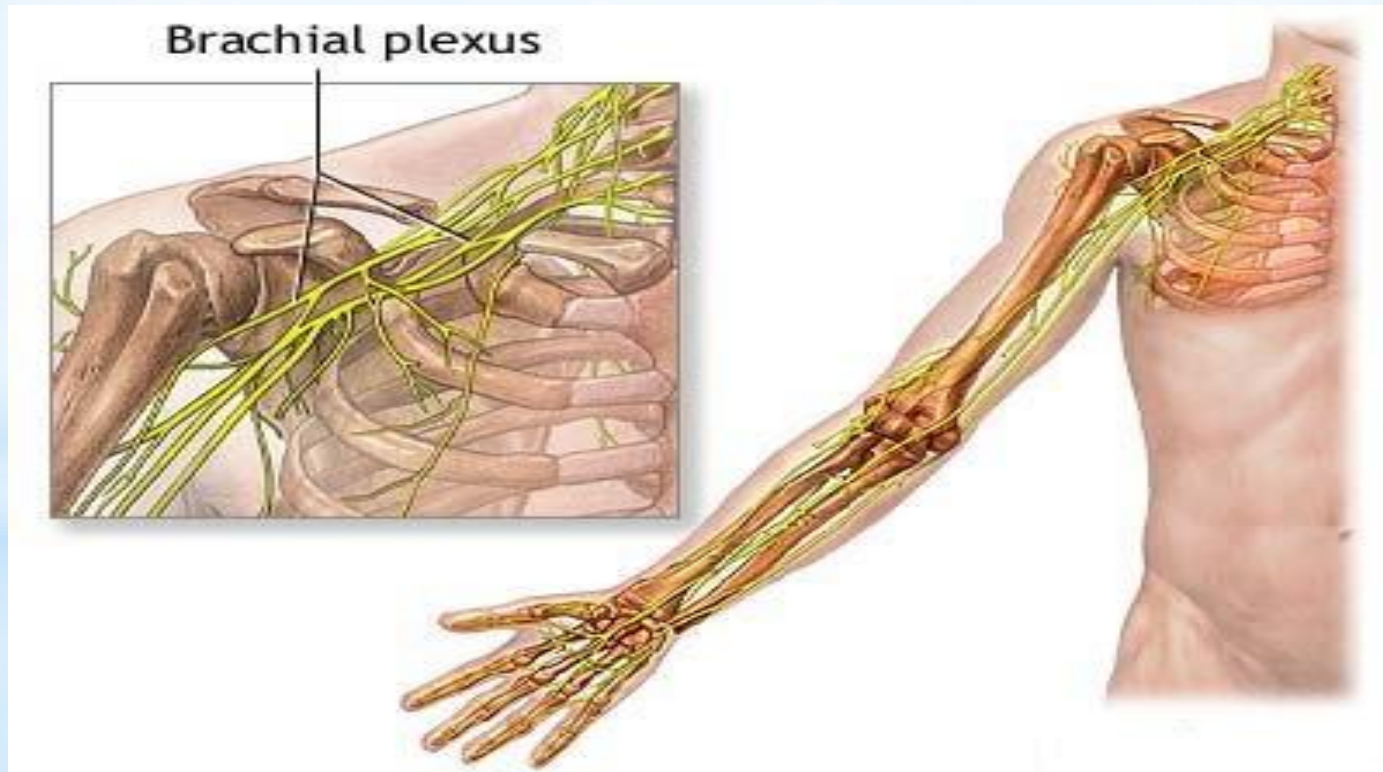
Dr.Waleed Jawad

Dr.Raed Jasim

Dr.Rafid Mousa

Dr.Ahmed Khalaf

## BRACHIAL PLEXUS



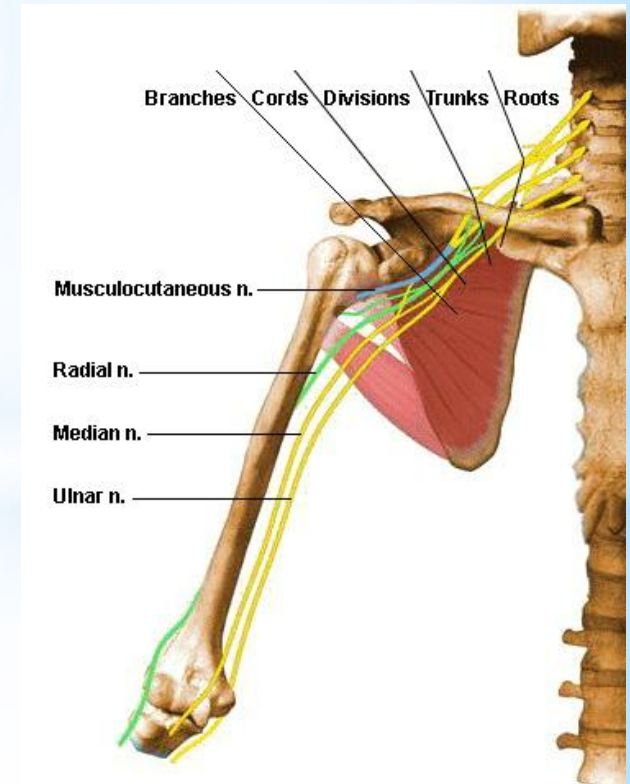
## **Objectives**

- 1. Describe brachial plexuses**
- 2. Divisions**
- 3. Branches of each division**

**The nerves entering the upper limb at the root of the neck provide the following functions:**

- 1.Sensory innervation to skin & deep structures (e.g. joints)**
- 2. Motor innervation to the muscles**
- 3. sympathetic vasomotor nerves to BV**
- 4. Sympathetic secretomotor supply to the sweat glands.**

**the nerves form**  
**Brachial plexus** L01



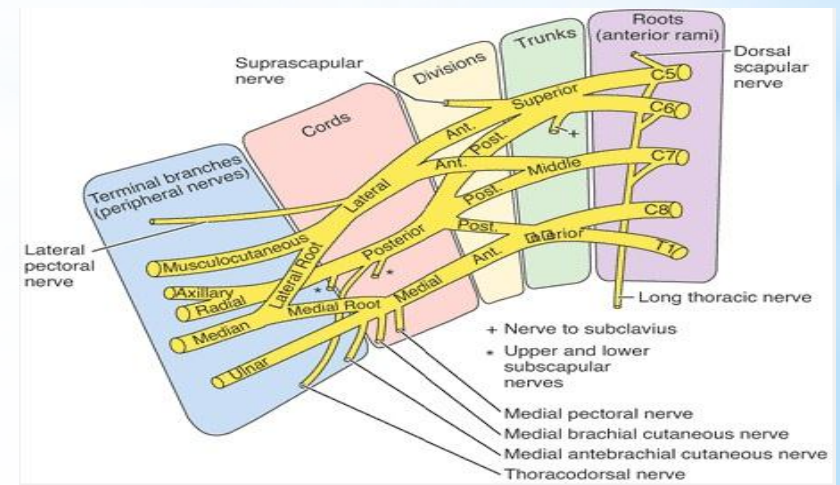
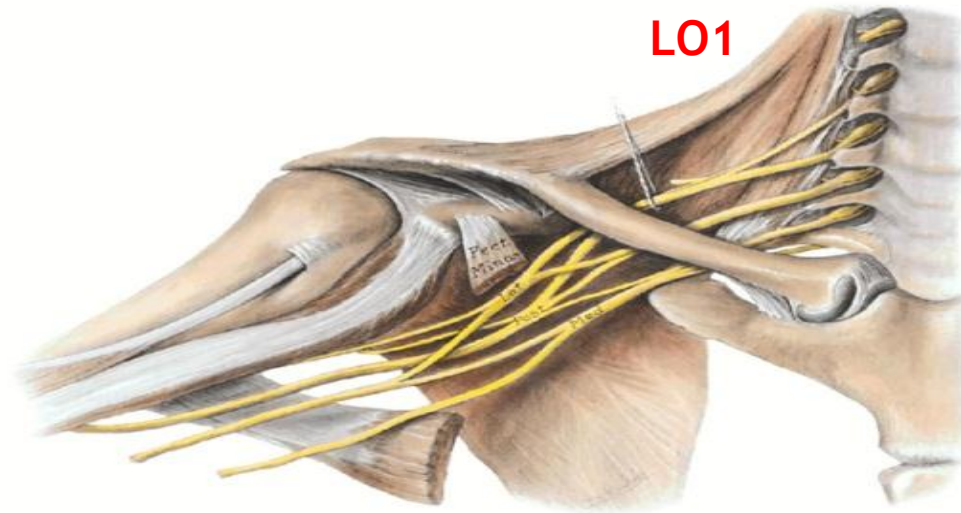
## Brachial plexus:

The brachial plexus is formed by: union of the **anterior rami** of the last

**4 cervical (C5-C8) & first thoracic (T1) nerves**

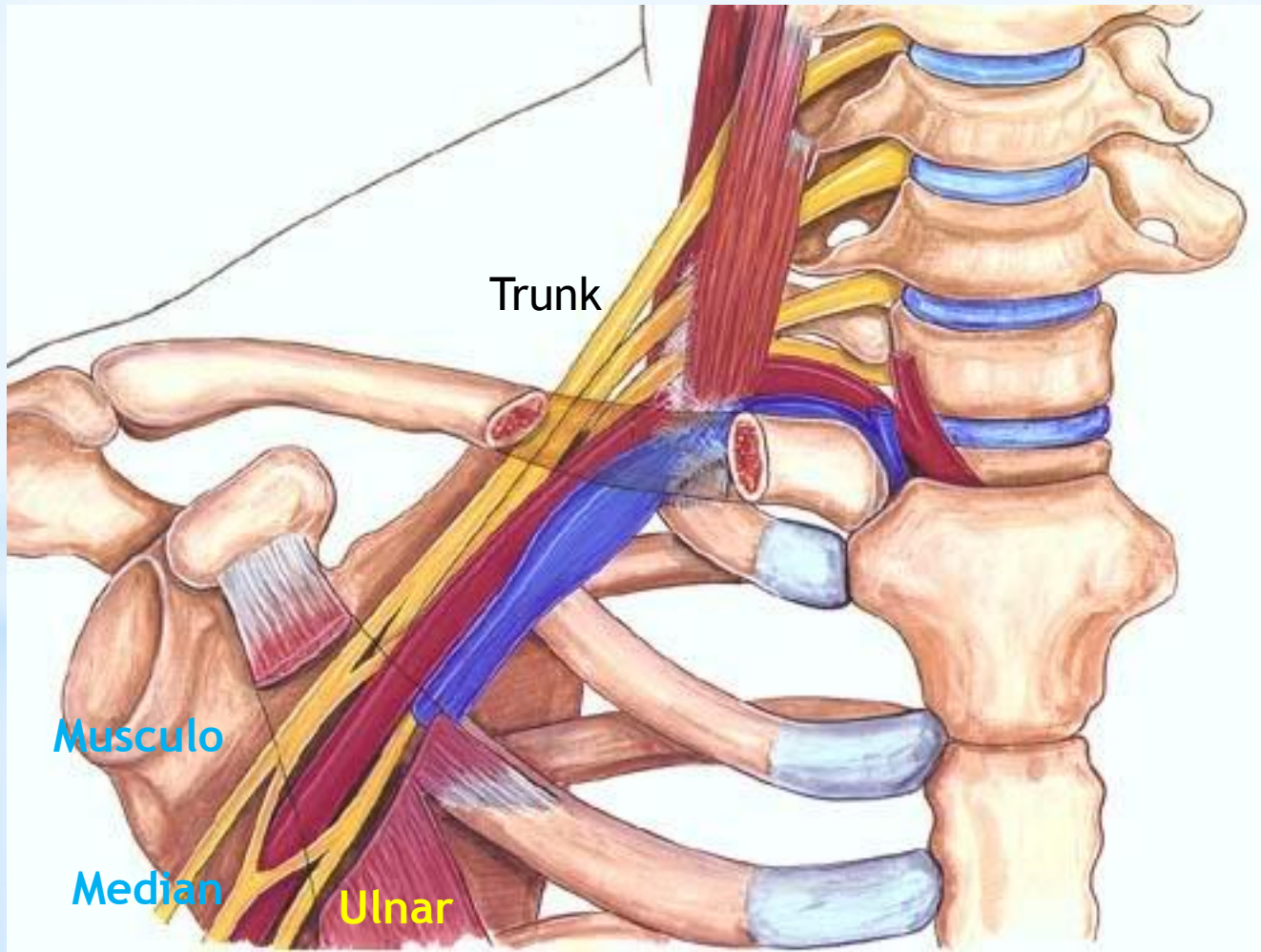
which constitute the roots of the brachial plexus.

Originates in the neck, passes laterally and inferiorly over rib I, and enters the axilla.



Originates in the neck, passes laterally and inferiorly over rib I, and enters the axilla.



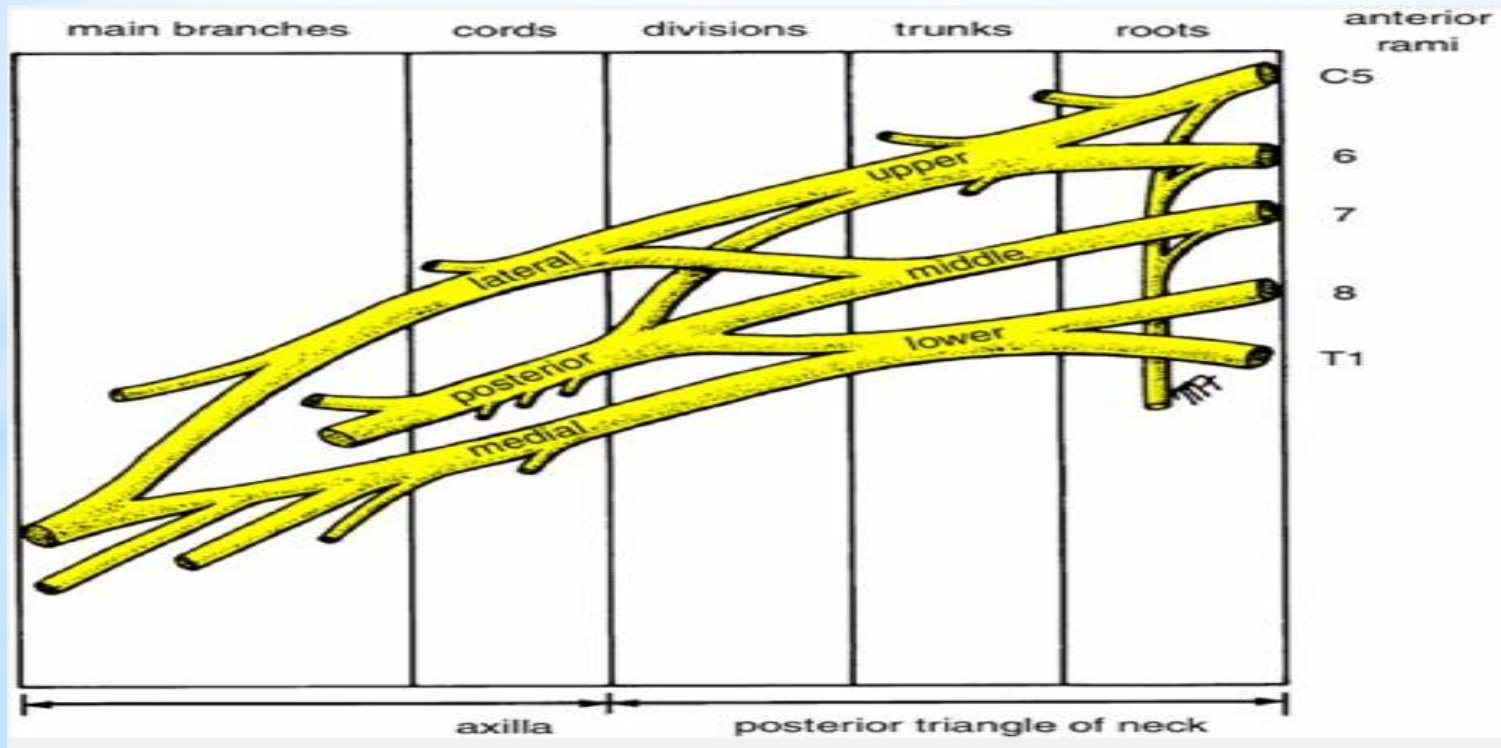


L01

The parts of the brachial plexus, from medial to lateral, are **roots**, **trunks**, **divisions**, and **CORDS**.

L02

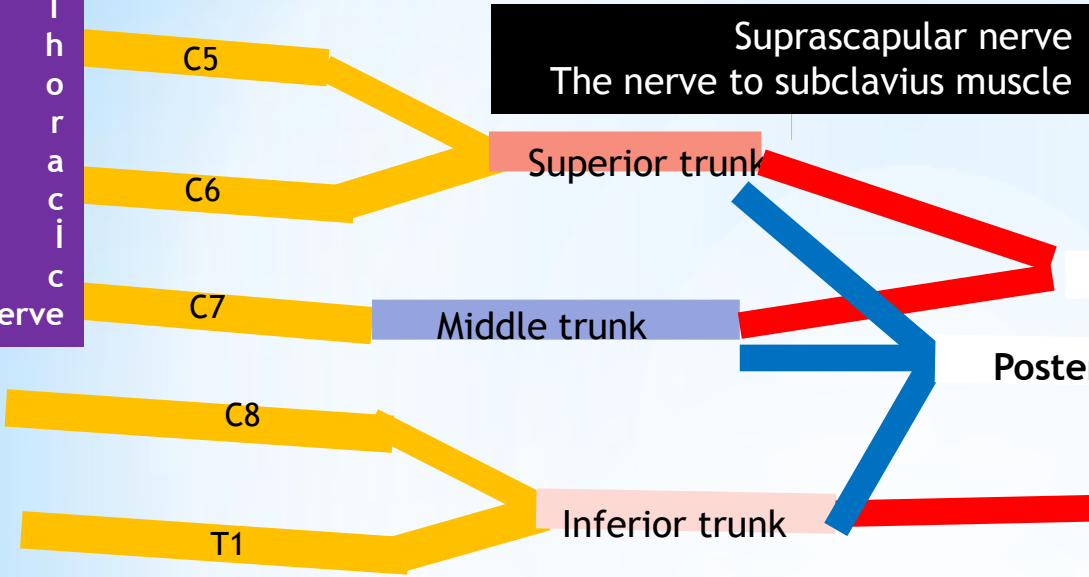
All major nerves that innervate the upper limb originate from the brachial plexus, mostly from the cords.





Dorsal scapular nerve

Long Thoracic nerve



L01

Lateral pectoral nerve  
Musculocutaneous nerve  
Lateral root of median nerve

Sup. & Inf. Subscapular nerves  
Thoracodorsal nerve  
Axillary nerve  
Radial nerve

Medial pectoral nerve  
Medial cutaneous nerve of arm  
Medial cutaneous nerve of forearm  
Ulnar nerve  
Median nerve

Red: Anterior division  
Blue: Posterior division

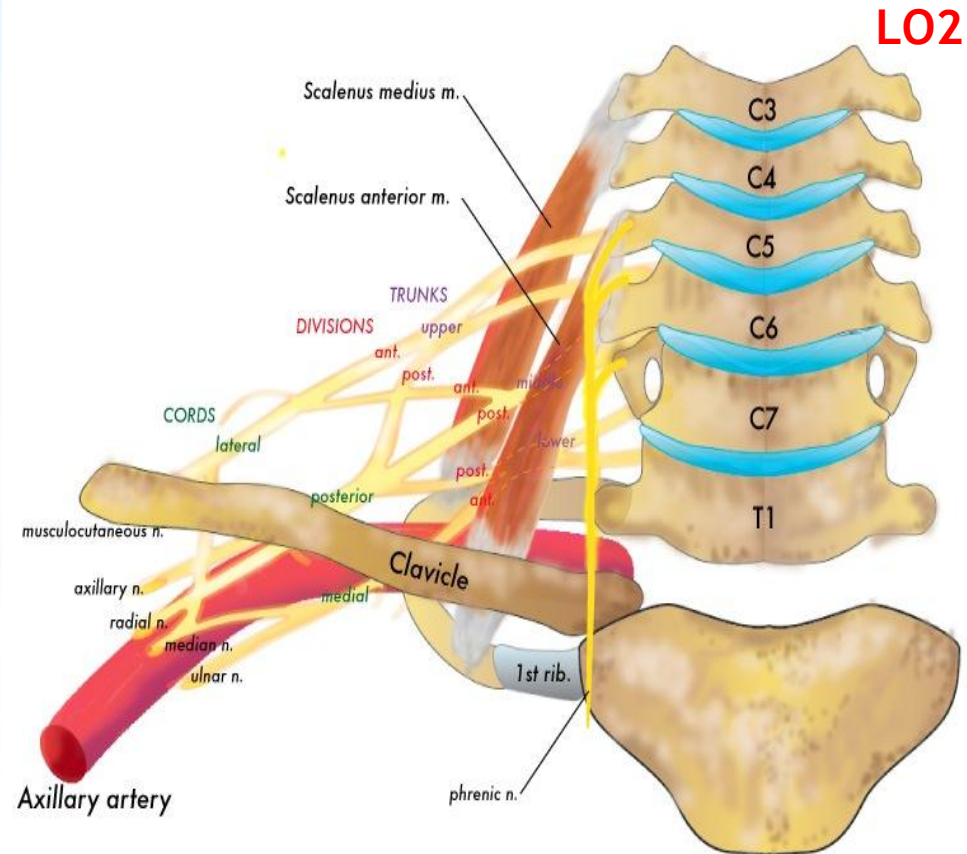
## ROOTS

Anterior rami of C5 to C8, and most of T1.

The **roots & trunks** enter the the neck by passing between the **anterior scalene and middle scalene muscles**.

Close to their origin, the roots receive gray rami communicantes from the **sympathetic trunk**.

These carry postganglionic sympathetic fibers onto the roots for distribution to the periphery.



## TRUNKS

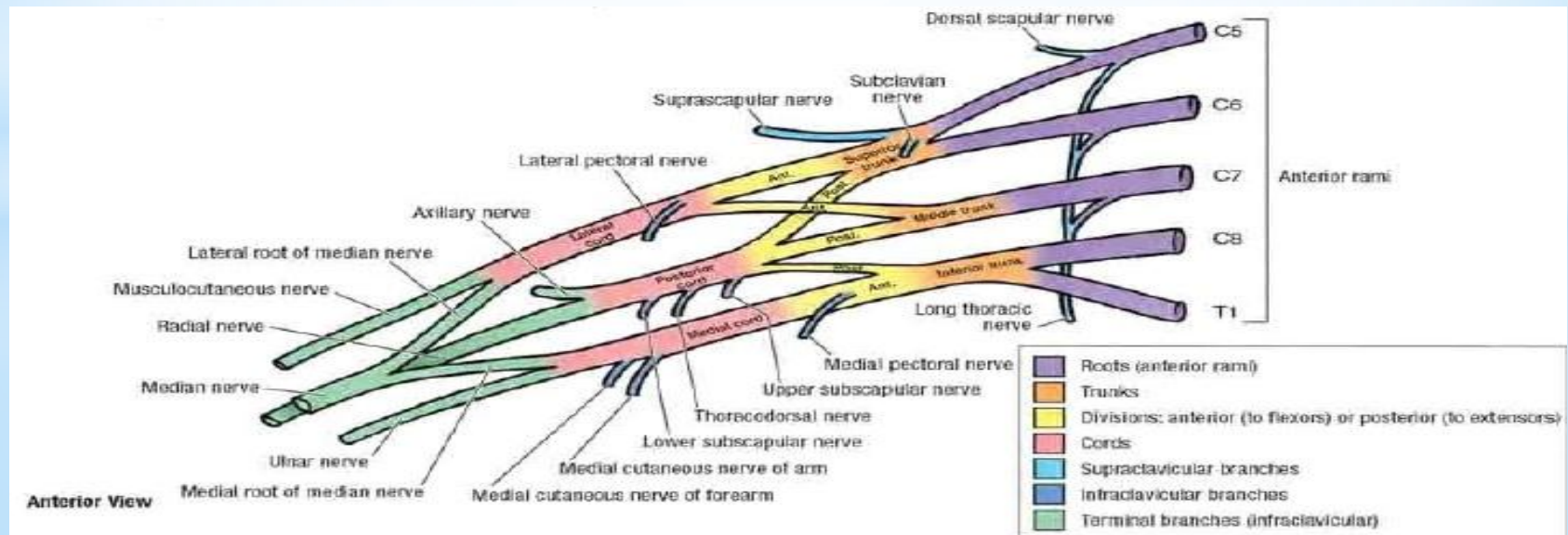
LO2

In the **inferior part** of the neck, the **roots** of the brachial plexus **unite** to form **three trunks**:

**Superior trunk** formed by union of **C5 & C6 roots**

**Middle trunk** a continuation of **C7 root**

**Inferior trunk** formed by the union of **C8 & T1 roots**



*The inferior trunk lies on rib I posterior to the subclavian artery; the middle superior trunks are more superior in position.*



## DIVISIONS

Each trunk divides into:

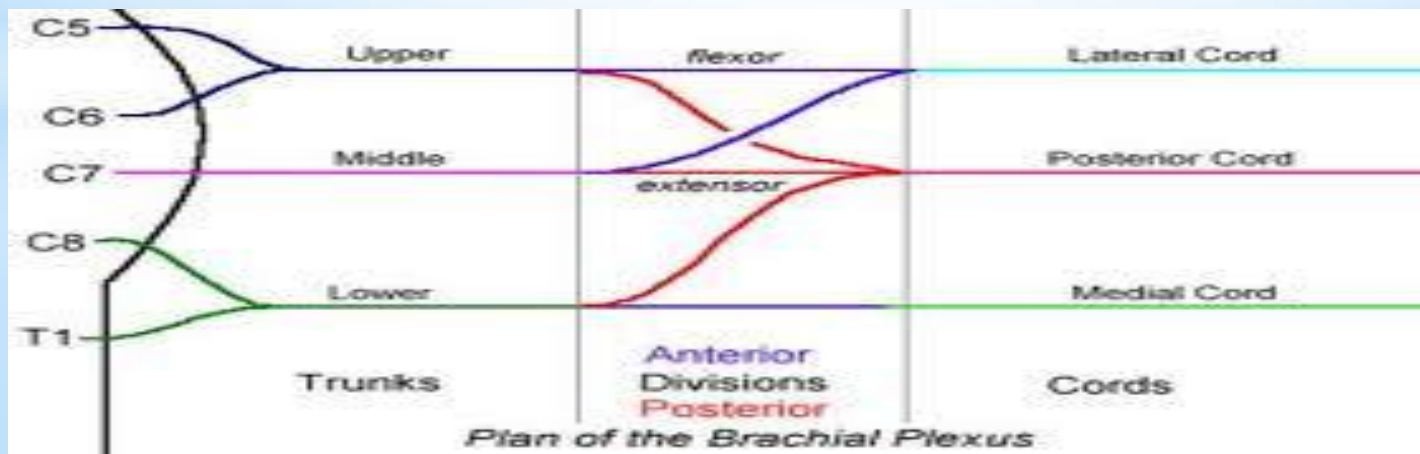
**anterior & posterior divisions** as the plexus passes through the cervicoaxillary canal posterior to the clavicle.

### Anterior divisions of the trunks

supply **anterior (flexor) compartments** of the upper limb

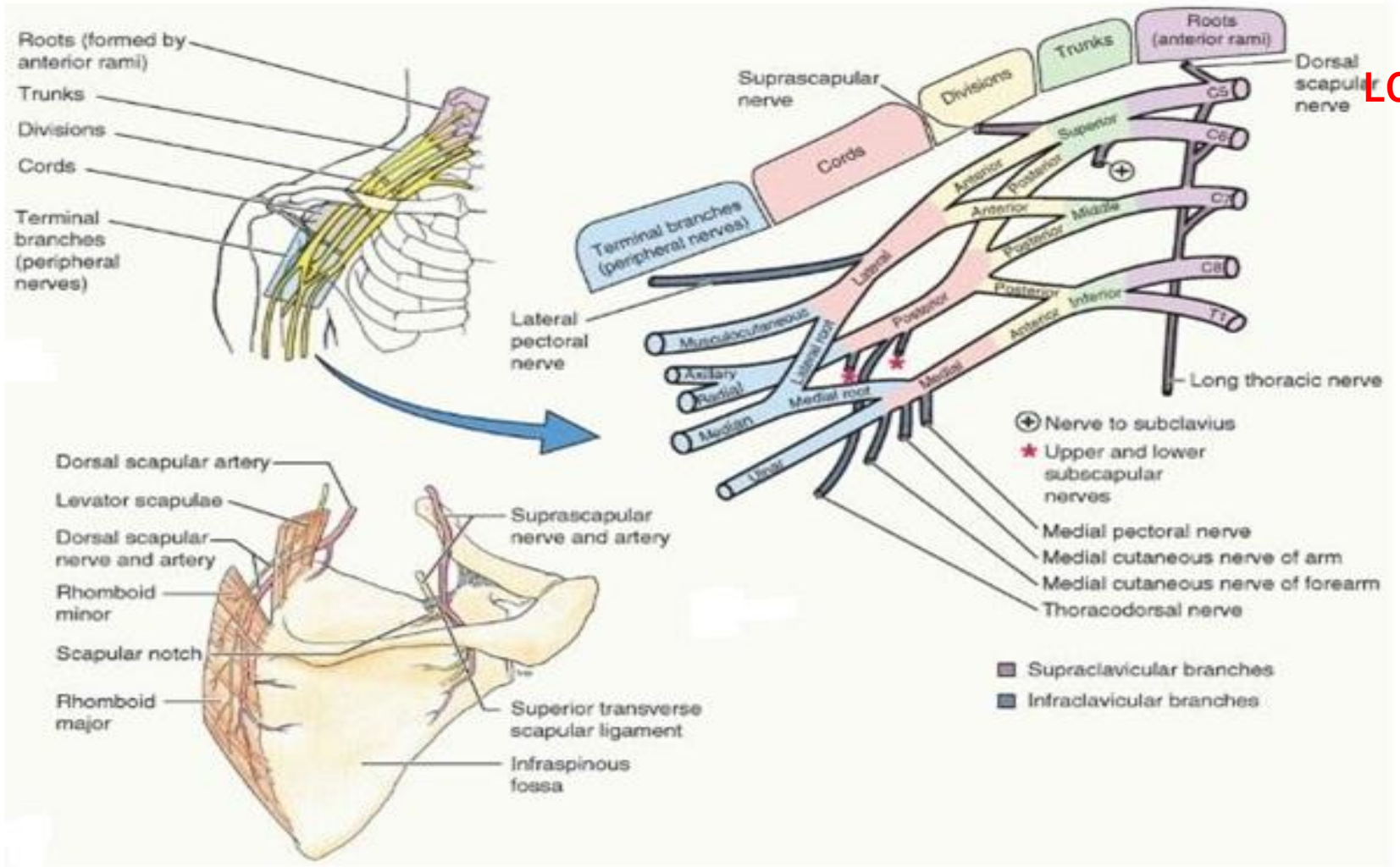
### Posterior divisions of the trunks

supply **posterior (extensor) compartments**.



**No peripheral nerves** originate directly from the divisions of the brachial

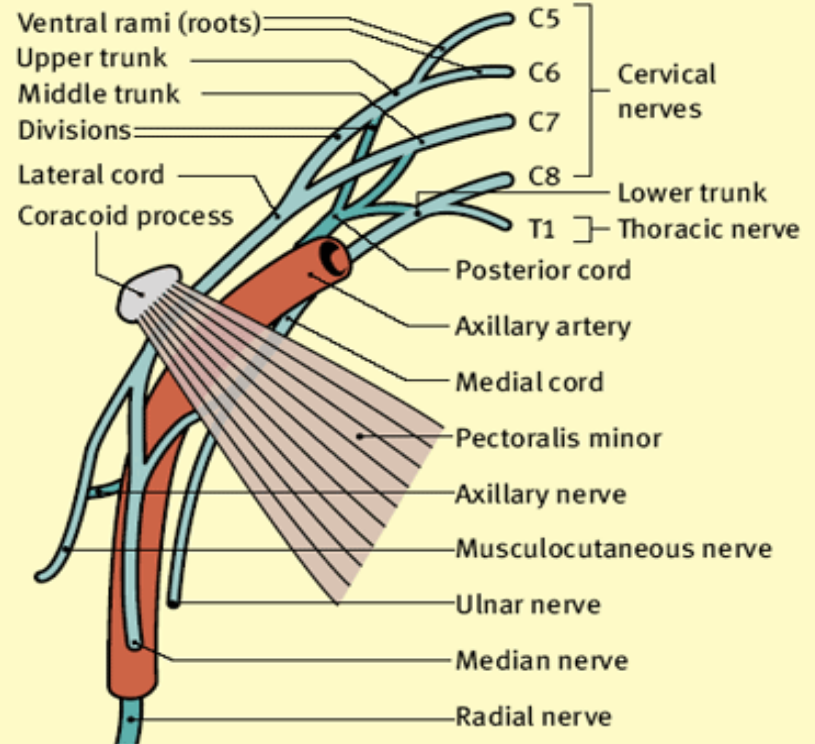




## Cords

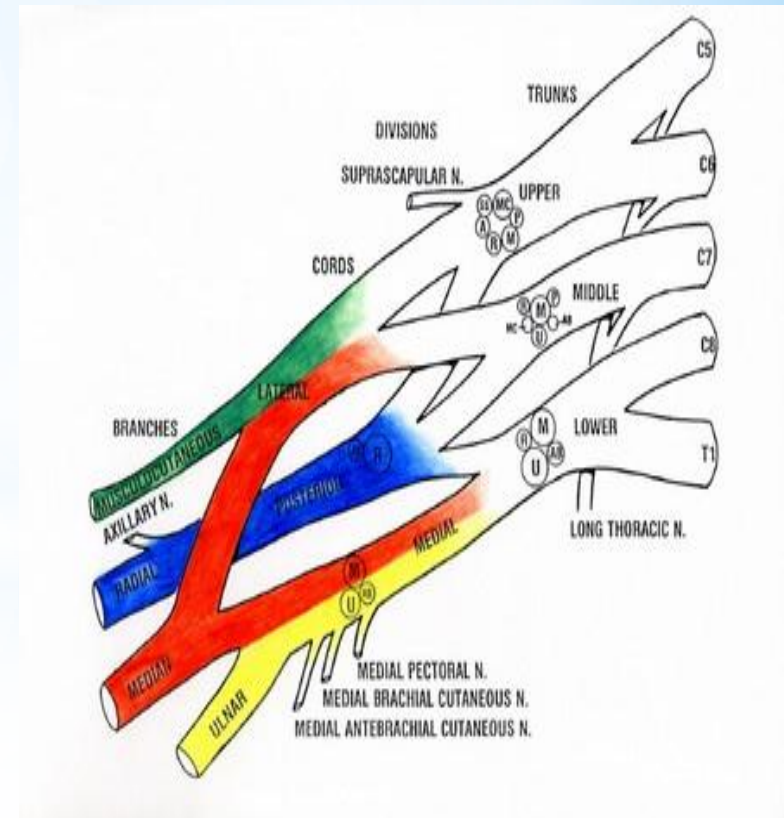
The **three cords** of the brachial plexus originate from the divisions and are related to the **2<sup>nd</sup>** of the **axillary artery**.

### Relationship of the brachial plexus to the axillary artery



Posterior divisions and their branches dark green

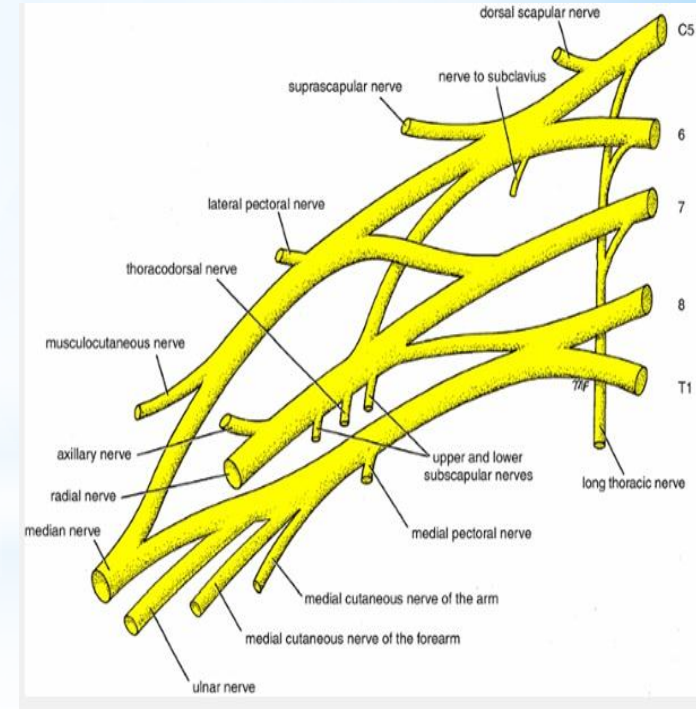
- \* **Lateral cord**
- \* Union of **anterior divisions of upper & middle trunks**
- \* (C5-C7)
- \* **Medial cord**
- \* Continuation of **anterior division of inferior trunk**
- \* (C8-T1)
- \* **Posterior cord**
- \* **Union of all three posterior divisions**
- \* (C5 to T1)



## Branches of the roots

Dorsal scapular nerve (C5 root of the brachial plexus)  
innervates **rhomboid major and minor muscles**

Long thoracic nerve (anterior rami of C5 to C7)  
innervates **serratus anterior muscle**

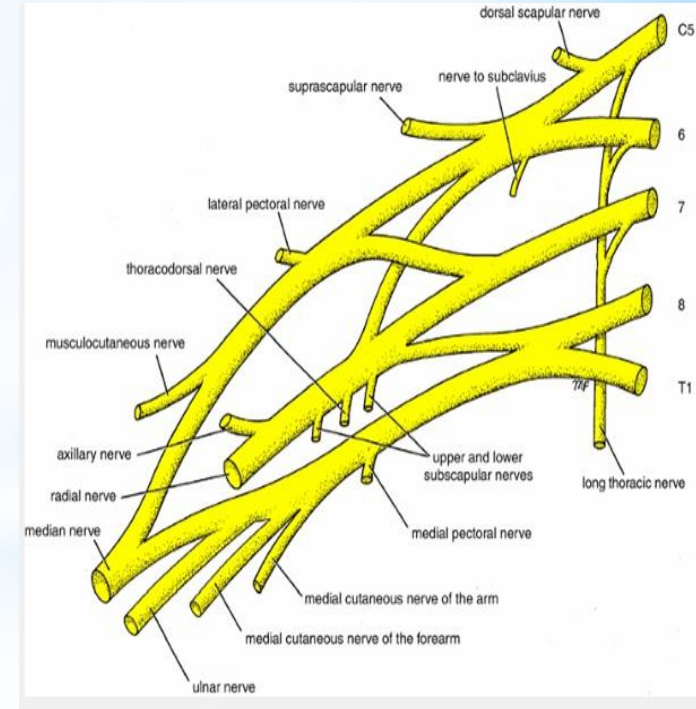




## Branches of the roots

Dorsal scapular nerve (C5 root of the brachial plexus)  
innervates **rhomboid major and minor muscles**

Long thoracic nerve (anterior rami of C5 to C7)  
innervates **serratus anterior muscle**



## Branches of the trunk

L03

The only branches from the trunks of the brachial plexus are 2 nerves ;originate from the superior trunk.

**Suprascapular nerve** (C5 & C6)  
innervates **supraspinatus** &  
**infraspinatus** muscles

Suprascapular  
Origin: Superior trunk  
Spinal segments: C5, C6



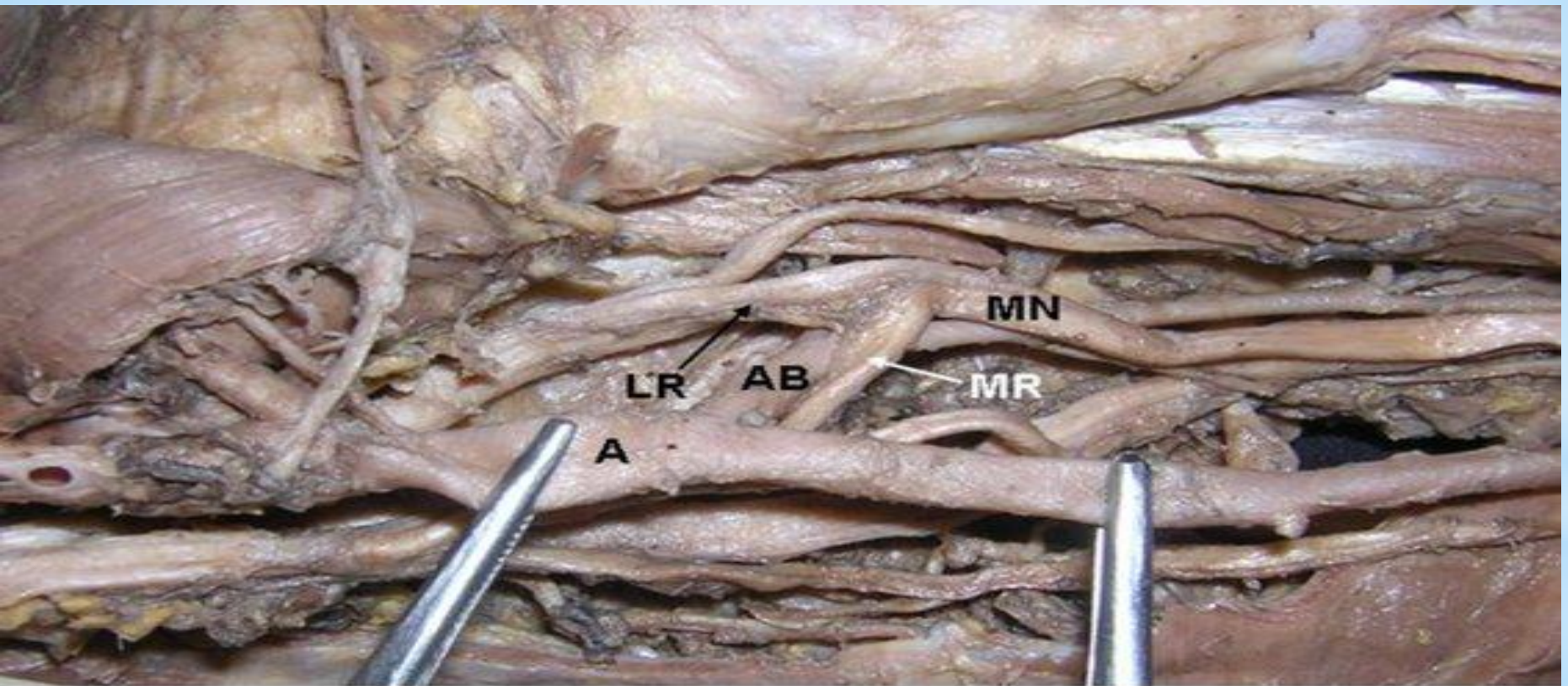
Function: motor  
Supraspinatus, infraspinatus

**The nerve to subclavius**  
**muscle** (C5 & C6)  
innervates **subclavius** muscle

Nerve to subclavius  
Origin: Superior trunk  
Spinal segments: C5, C6



Function: motor  
Subclavius



A – third part of axillary artery, AB – anomalous branch, MR – medial root of median nerve, LR – lateral root of median nerve, MN – median nerve.



***Thank you***

