



MED437
KING SAUD UNIVERSITY



Pectoral region and Axilla

Lecture 8

Please check our [Editing File](#).

هذا العمل لا يغني عن المصدر الأساسي للمذاكرة

{وَمَنْ يَتَوَكَّلْ عَلَى اللَّهِ فَهُوَ حَسْبُهُ}

Objectives

- Identify and describe the muscles of the pectoral region:
 - **Pectoralis major**
 - **Pectoralis minor**
 - **Subclavius**
 - **Serratus anterior**
 - Describe and demonstrate the boundaries and contents of the **axilla**.
 - Describe the formation of the **brachial plexus** and its branches.
-
- Text in **BLUE** was found only in the boys' slides
 - Text in **PINK** was found only in the girls' slides
 - **Text in RED is considered important**
 - Text in **GREY** is considered extra notes

Muscles of the pectoral region

Pectoralis Major

origin

- (1) **Clavicular head:** Medial ½ of the front of the clavicle.
- (2) **Sternocostal head:** Sternum - Upper 6 costal cartilages* - Aponeurosis** of the external oblique muscle.

insertion

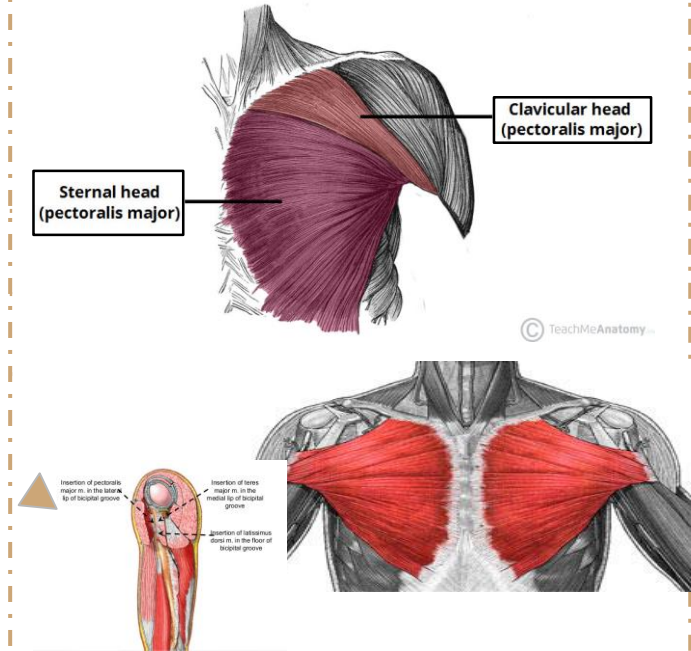
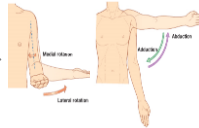
Lateral lip of bicipital groove (**Humerus**). ▲

Nerve supply

Medial & lateral pectoral nerves.

Action

- (1) Adduction of the arm. Extra picture
- (2) medial rotation of the arm. ▲
- (3) flexion shoulder (**helps by clavicular head**).
- (4) Also it helps in climbing.



*Costal cartilage (hyaline cartilage that connects the ribs to the sternum).

**Aponeurosis: a sheet of fibrous tissue which takes the place of a tendon in sheet-like muscles having a wide area of attachment.

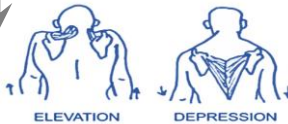
Recall what we took in foundation: Muscles are attached to bones / ligaments / cartilage by

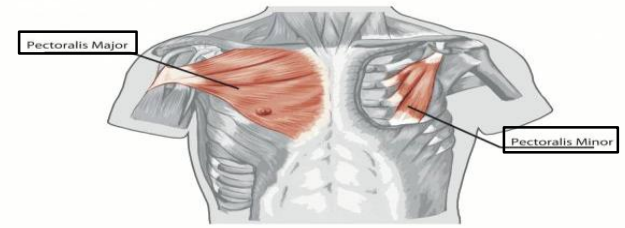
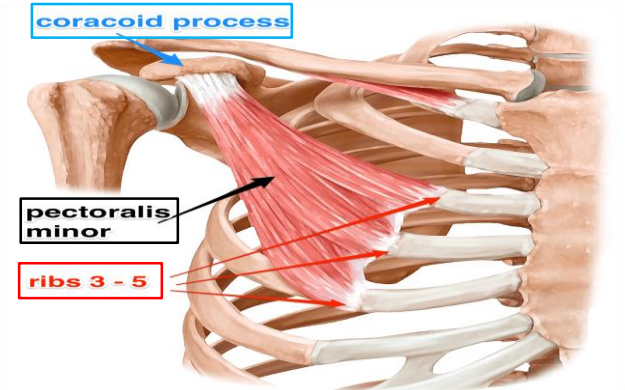
1) tendons 2) aponeurosis 3) raphe. ****Team436**

Muscles of the pectoral region

Pectoralis Minor

It locate deep to Pectoralis Major

origin	3rd ,4th, & 5th ribs close to their costal cartilages (on the bone itself)
insertion	Coracoid process (scapula).
Nerve supply	Medial pectoral nerve.
Action	<p>(1) <u>Depression</u> of the shoulder. "Pectoralis <u>Major</u> it helps but the main is <u>Pectoralis Minor</u>"</p>  <p>Extra picture</p> <p>(2) Draw the ribs upward and outwards during deep inspiration. → "شهيق" "لما تأخذ نفس عميق" "الـ ribs" ترتفع ل فوق وتبرز لبرا</p>



Muscles of the pectoral region

Subclavius

origin

1st rib and its costal cartilage
(1st costochondral junction).

insertion

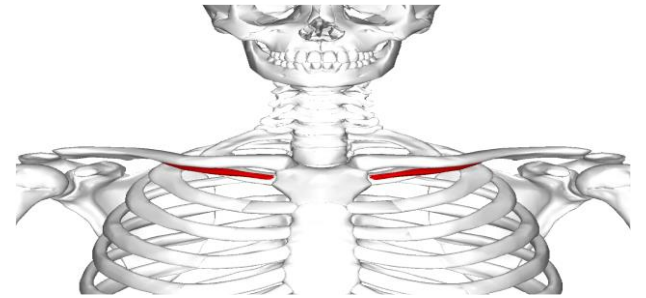
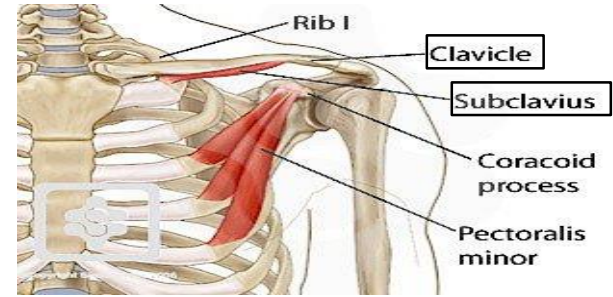
Subclavian groove in the **middle 1/3** of the inferior surface of **clavicle**.

Nerve supply

Nerve to subclavius from **upper trunk** of brachial plexus.

Action

Fixes "يثبت" the **clavicle** during movement of shoulder joint.



pectoral region

Clavipectoral Fascia

fascia = dense fibrous connective tissue

Definition:

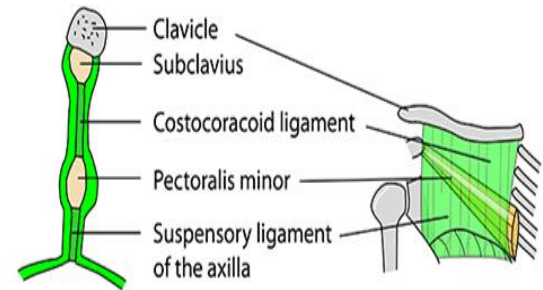
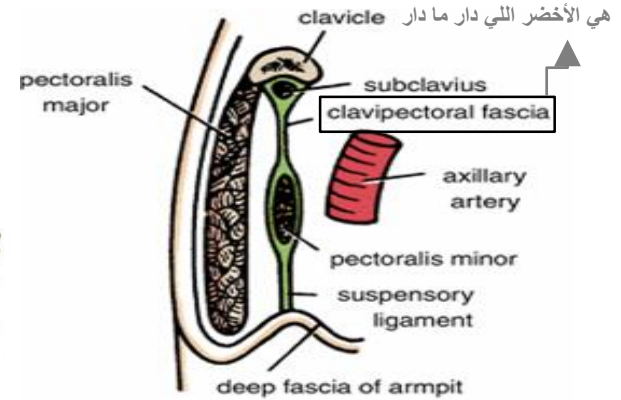
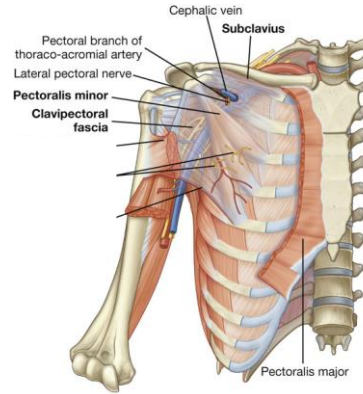
It is a **thickened** membrane of **deep fascia** between the subclavius above and pectoralis minor below.

It's pierced by "يمر من خلاله" :
"CALL"

- 1- **C**: Cephalic vein.
- 2- **A**: Thoraco-Acmial artery.
- 3- **L**: Lateral pectoral nerve.
- 4- **L**: Few Lymph vessels.



For better understand watch it!



Muscles of the pectoral region

Serratus anterior

<p>origin</p>	<p>Upper eight ribs.</p>	
<p>insertion</p>	<p>anterior aspect of the medial border and inferior angle of scapula.</p>	
<p>Nerve supply</p>	<p>Long thoracic nerve (from roots of brachial plexus, C5,6,7) "nerve of Serratus anterior"</p>	
<p>Action</p>	<p>(1) Draws the scapula forward in boxing, (protrusion or protraction*) "boxer's muscle" (2) Rotates scapula outwards in raising the arm above 90 degree (Abduction above 90) with trapezius muscle.</p>	

*Team 436:

Don't confuse protraction and retraction.

Retraction: (when you wake up and are yawning).

Protraction: (when you extend your arm like when

punching someone or boxing hence the name boxer's muscle)



for better understand of Serratus anterior

action (2:18 to 2:48)

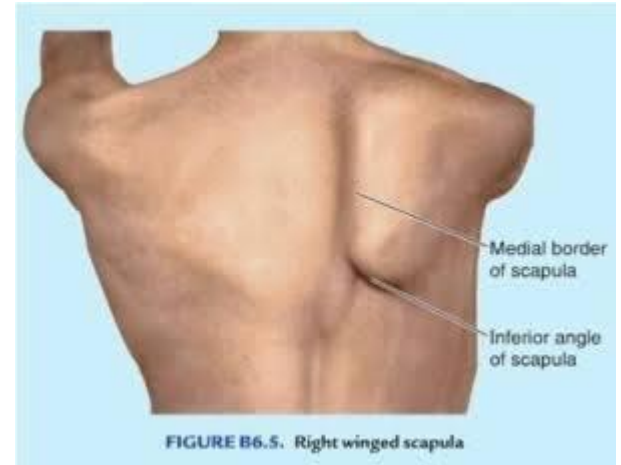


Applied Anatomy

Winging of scapula

Lesion “suffered damage” of **long thoracic nerve (C5,6,7)** causes : **backward** projection of **medial border** of **scapula**.

This deformity is (Paralysis of **Serratus anterior muscle**)



Axilla

- A **4** sided **pyramidal-shaped** space between the upper part of the arm and the side of the chest.
- It's the space through which major **neurovascular structures** pass between neck & thorax and upper limbs.

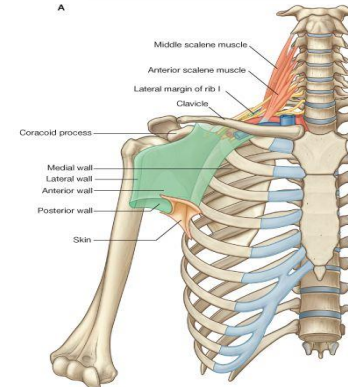
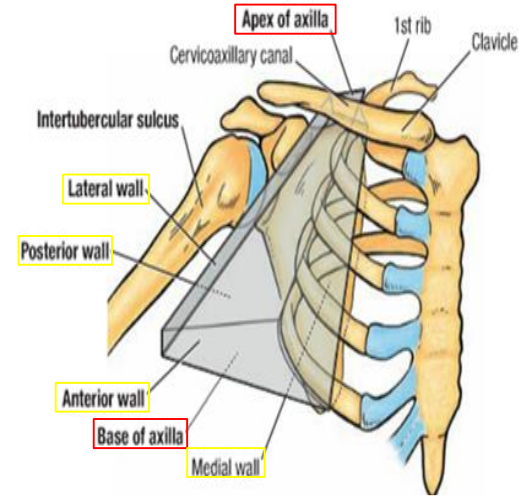
The Axilla has:

A. Apex

B. Base

C. Four Walls:

1. Anterior wall
2. Posterior wall
3. Medial wall
4. Lateral wall



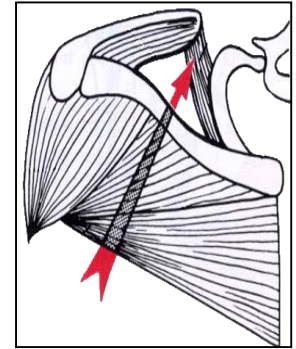
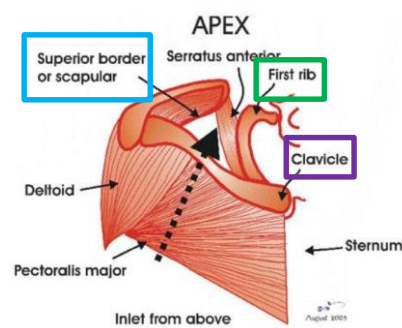
© Elsevier. Drake et al.: Gray's Anatomy for Students - www.studentconsult.com

Extra picture
for understanding

Axilla

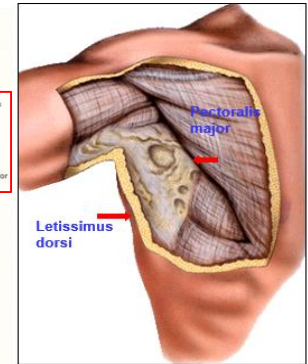
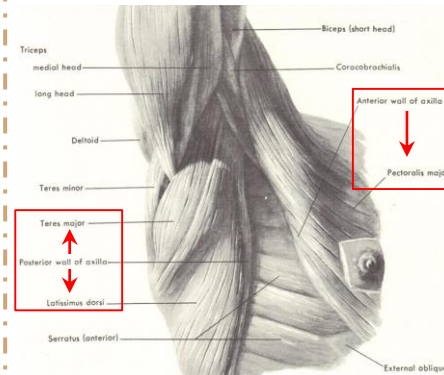
APEX

- Is directed **upwards** & **medially** to the root of the neck.
- It is called **Cervicoaxillary canal** (which neurovascular structures pass through).
- It is **bounded**, by 3 bones:
 - Clavicle **anteriorly**.
 - Upper border of the scapula **posteriorly**.
 - Outer border of the first rib **medially**.



BASE

- Formed by **skin** stretching between the **anterior** and **posterior** walls.
- The base is bounded by:
 - **In front by the anterior axillary fold** (formed by the lower border of Pectoralis major).
 - **Behind by the posterior axillary fold** (formed by tendons of latissimus dorsi and teres major).
 - **Medially by upper 4 to 5 ribs** & the chest wall.
 - **Laterally by** part of the shaft of humerus and it's muscles.

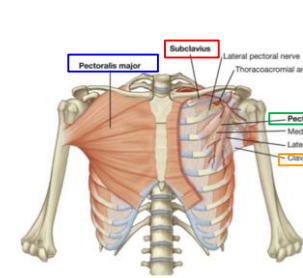


Axilla

Anterior wall

Is **formed by**:

- 1- Pectoralis major (it forms the anterior fold)
- 2- Pectoralis minor
- 3- Subclavius
- 4- Clavipectoral fascia

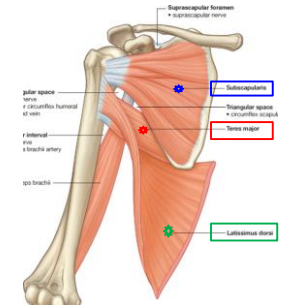


Anterior wall

Posterior wall

Is **formed by**:

- 1- Subscapularis
 - 2- Latissimus dorsi
 - 3- Teres major muscles
- (Latissimus dorsi and Teres major muscles form the posterior fold)

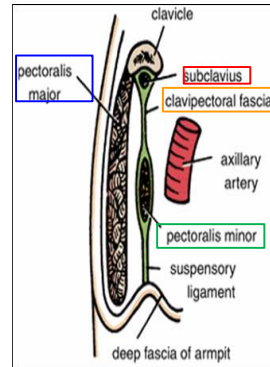


Posterior wall

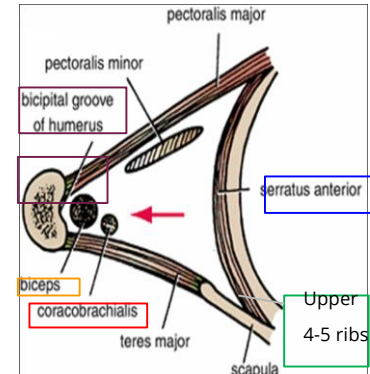
Medial wall

It is **WIDE** and **formed by**:

- 1- Serratus anterior
- 2- Upper 4-5 ribs & Intercostal muscles



Anterior wall



Medial & lateral wall

Lateral wall

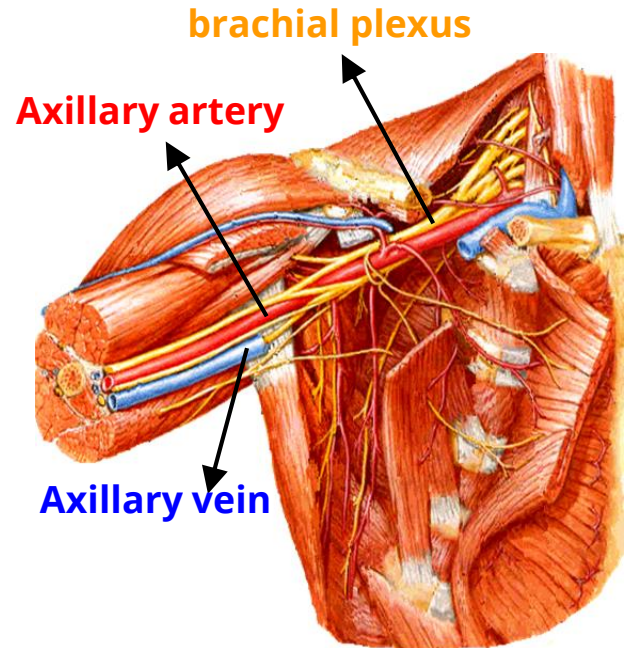
It is **NARROW** and **formed by**:

- 1- Coracobrachialis
- 2- Biceps brachii
- 3- Bicipital (intertubercular) groove of the humerus

Axilla

Contents of axilla

- Cords and braches of the **brachial plexus**.
- **Axillary artery** and its branches.
- **Axillary vein** and its tributaries.
- **Axillary lymph nodes**.
- **Axillary fat**.
- Loose connective tissue.



Brachial Plexus

Watch this video for a better understanding of Brachial Plexus.



The posterior triangle consists of: 1) clavicle
2) sternocleidomastoid muscle
3) trapezius

Definition:

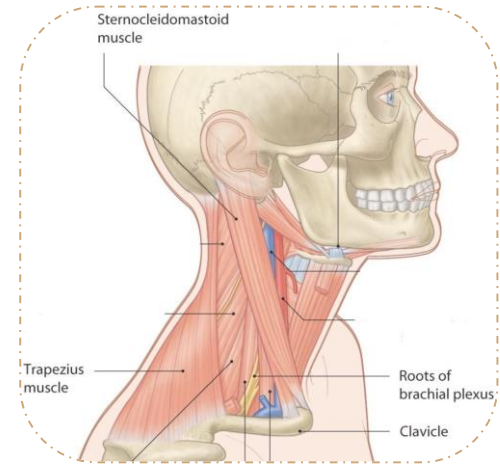
Brachial plexus is a **network of nerves** that is formed at the root of the neck to enter the upper limb.

Location:

it is present in the **posterior triangle** of the neck and **axilla**.

Formation:

it is formed by the union of the anterior Rami of the C5th, 6th, 7th, 8th (cervical spinal nerves) and the 1st thoracic spinal nerve.

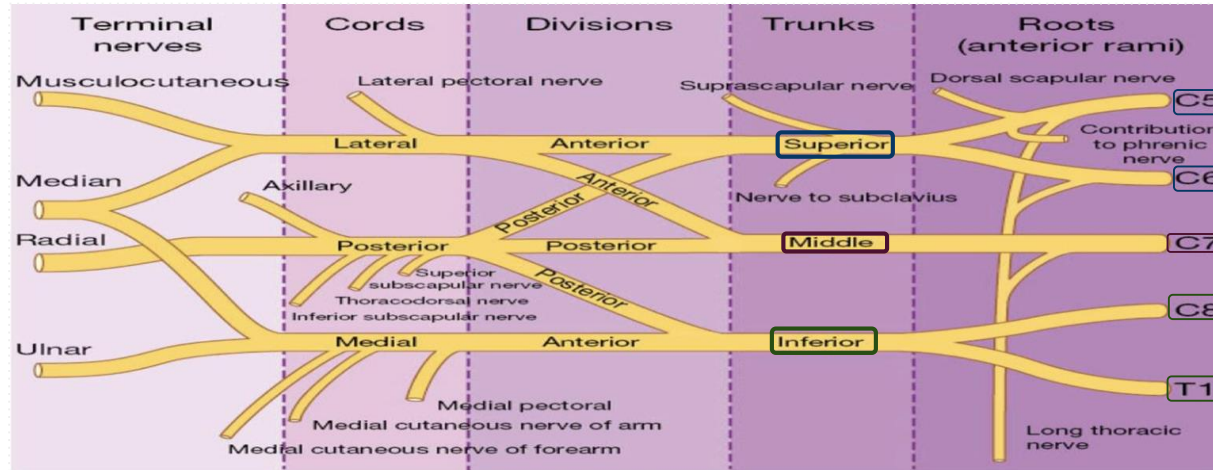


Extra picture

Brachial Plexus

The plexus can be divided into 5 stages:

Really Tired? ... Drink Coffee



- ❖ **Roots from C5 and C6** unite to form **upper trunk**.
- ❖ **Roots of c7** continuous as the **middle trunk**.
- ❖ **Roots from C8 and T1** unite to form **lower trunk**.

Branches:
in the axilla.

Cords:
in the axilla.

Divisions: behind
the clavicle (in
cervicoaxillary canal)

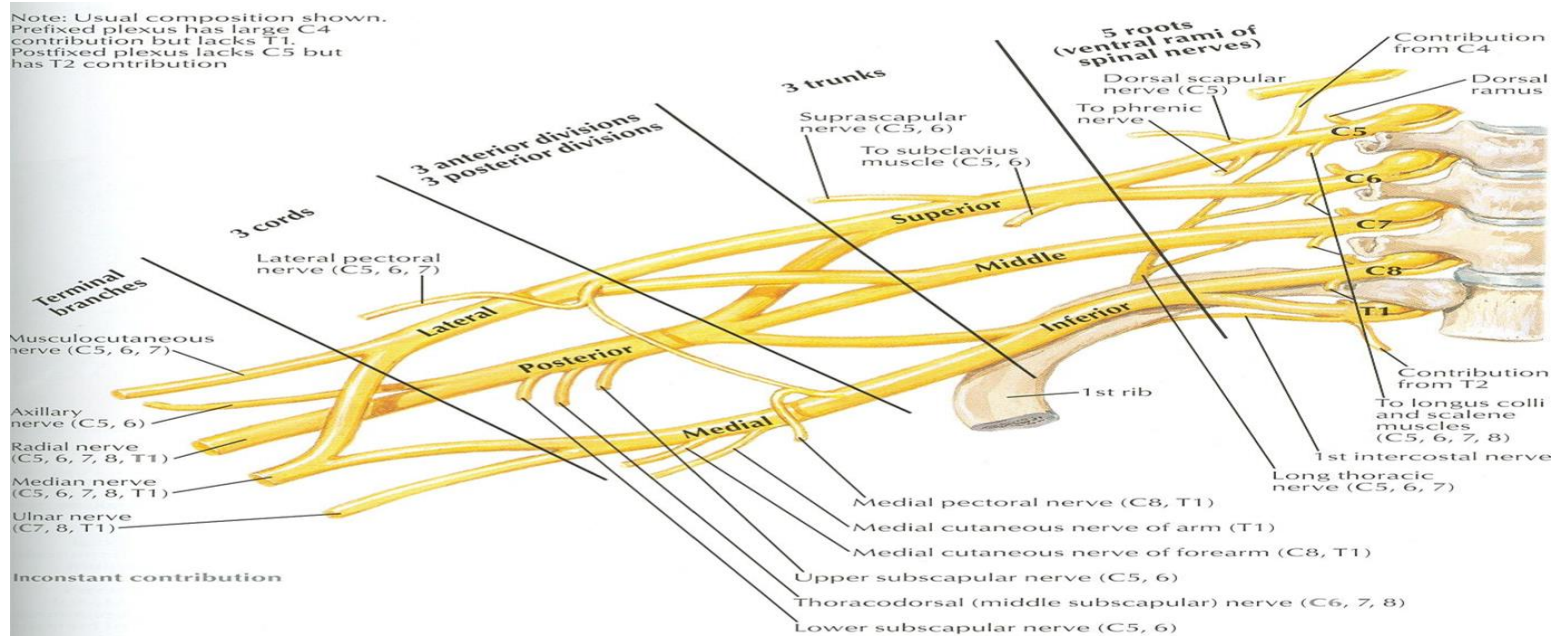
Trunks: in the
posterior
triangle.

Roots: in the
posterior
triangle.

- ❖ The first 2 stages lie in posterior triangle.
- ❖ The last 2 stages lie in the axilla.

Brachial Plexus

*Each Trunk have Posterior and Anterior divisions.



The **anterior divisions** of the **upper and middle trunks** unite to form the **Lateral cord**.

The **anterior division** of the **lower trunk** continues as the **Medial cord**.

All the **posterior divisions** of the **three trunks** join to form the **Posterior cord**.

Roots

Upper trunk

Dorsal scapular nerve (C5)

Suprascapular nerve (C5,C6)

Long thoracic nerve (C5,C6,C7)

Nerve to subclavius (C5,C6)

Lateral cord-3

"Lucy Loves Me"

Medial cord-5

"Most Men Use Morphine"

Posterior cord-5

"STAR"

Lateral pectoral nerve.

Medial pectoral nerve.

Upper & lower
Subscapular nerves.

Median nerve (Lateral root).

Median nerve (medial root).

Thoracodorsal (N. to latissimus dorsi).

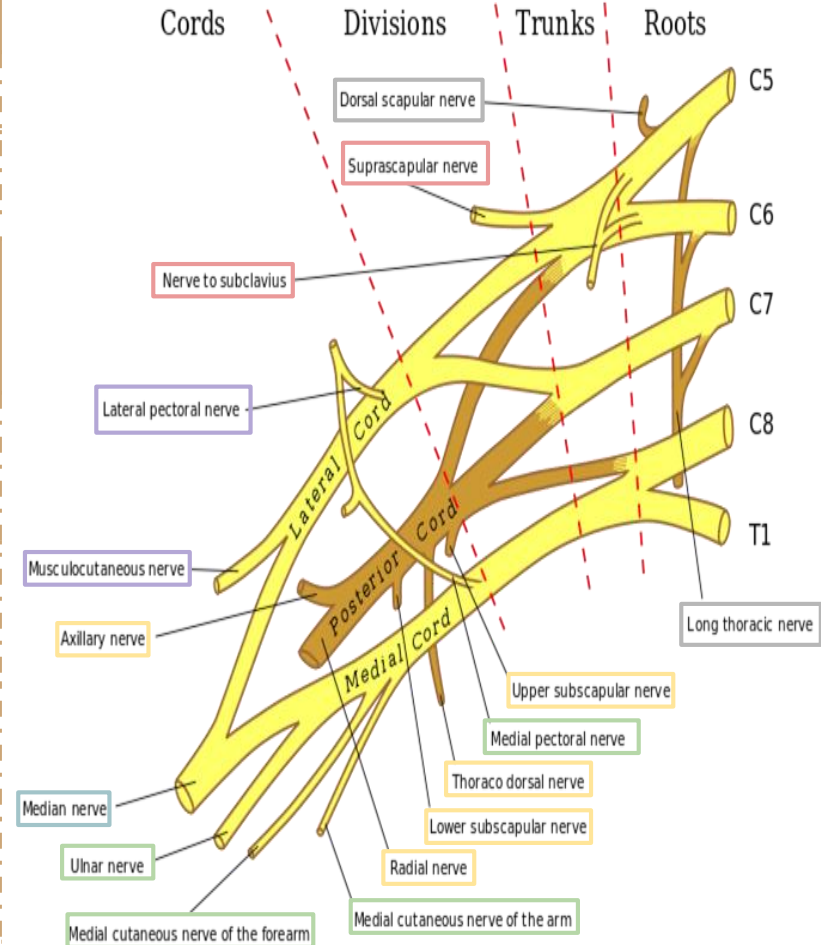
Musculocutaneous nerve.

Ulnar Nerve

Axillary nerve

Medial cutaneous nerve of arm & forearm.

Radial nerve



Summary for Muscles of the pectoral region

Muscle	Origin	Insertion	Nerve supply	Action
Pectoralis Major	<p>(1)<u>Clavicular head</u>: Medial ½ of the front of the clavicle.</p> <p>(2)<u>Sternocostal head</u>:</p> <ul style="list-style-type: none"> - Sternum. - Upper 6 costal cartilages. - Aponeurosis of the external oblique muscle. 	Lateral lip of bicipital groove (Humerus).	<u>Medial & lateral pectoral nerves</u>	<p>(1) Adduction of the arm</p> <p>(2) medial rotation of the arm.</p> <p>(3) Clavicular head helps in <u>flexion of arm (shoulder)</u>.</p>
Pectoralis Minor	3 rd , 4 th , & 5 th ribs close to their costal cartilages.	Coracoid process (scapula).	<u>Medial pectoral nerve</u>	<p>(1) Depression of the shoulder.</p> <p>(2) Draw the ribs upward and outwards during deep inspiration.</p>
Subclavius	1 st rib at its junction with 1 st costal cartilage.	Subclavian groove in the middle 1/3 of the inferior surface of clavicle.	Nerve to subclavius from <u>upper trunk</u> of brachial plexus.	Fixes the clavicle during movement of shoulder joint
Serratus anterior	Upper eight ribs.	anterior aspect of the <u>medial border of inferior angle of scapula</u> .	Long thoracic nerve (from roots of brachial plexus, C5,6,7).	<p>(1) Draws the scapula forward in boxing, (protrusion or protraction). "<u>boxer's muscle</u>"</p> <p>(2) Rotates scapula outwards in raising the arm above 90 degree (Abduction above 90)</p>

MCQs

(1) Insertion of pectoralis major (muscle of pectoral region) is _____ :

- A- coracoid process (scapula)
- B- lateral lip of bicipital groove (humerus)
- C- subclavian groove of clavicle

(2) Clavipectoral Fascia is a thickened membrane of deep fascia between _____ :

- A- subclavius and pectoralis minor
- B- subclavius and pectoralis major
- C- subclavius and Serratus anterior

(3) Apex of axilla is bounded by _____ :

- A- 4 bones
- B- 2 bones
- C- 3 bones

(4) Which one of these sentences about the axillary walls is/are correct :

- A- the medial wall is wide, the lateral wall is narrow
- B- the anterior wall is narrow, the posterior wall is wide
- C- both A and B

(5) In brachial plexus the roots of C8 & T1 unite to form _____ :

- A- Upper trunk
- B- Middle trunk
- C- Lower trunk

Answers

1-B

2-A

3-C

4-A

5-C

Team Members

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Abeer Alabduljabbar
Afnan Abdulaziz Almustafa
Ahad Algrain
Alanoud Almansour
Albandari Alshaye
AlFhadah abdullah alsaleem
Arwa Alzahrani
Dana Abdulaziz Alrasheed
Dimah Khalid Alaraifi
Ghada Alhaidari
Ghada Almuhanha
Ghaida Alsanad
Hadeel Khalid Awartani
Haifa Alessa
Khulood Alwehabi
Layan Hassan Alwatban
Lojain Azizalrahman
Lujain Tariq AlZaid

Maha Barakah
Majd Khalid AlBarrak
Norah Alharbi
Nouf Alotaibi
Noura Mohammed Alothaim
Rahaf Turki Alshammari
Reham Alhalabi
Rinad MUSAED Alghoraiby
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Wafa Alotaibi
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Yazeed Aldossari
Muath Alhumood
Abdulrahman Almotairi

Abdulelah Aldossari
Abdulrahman Alduhayyim
Hamdan Aldossari
Mohammed Alomar
Abdulrahman Aldawood
Saud Alghufaily
Hassan Aloraini
Khalid Almutairi

Abdulmajeed Alwardi
Abdulrahman Alageel
Rayyan Almousa
Sultan Alfuhaid
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Sultan Al-nasser
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Mohammed Nouri
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Fahad Aldhowaihy
Omar alyabis