



Anatomy Team

433

**King Saud University
College of medicine
Musculoskeletal block**

7 PECTORAL REGION AND AXILLA

For any comments

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❖ By the end of the lecture the students should be able to: **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.

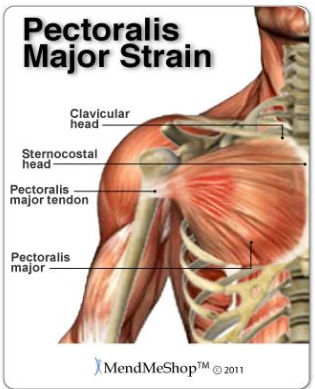

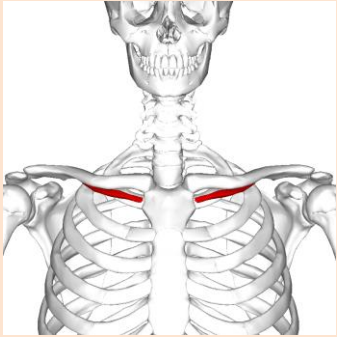
Color Index

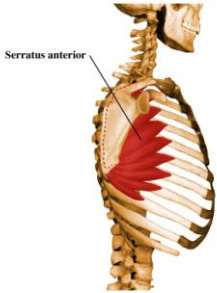
- Red :Important.
- Violet: Explanation.
- Gray: Additional Notes.

Other colors are for
Coordination

Say "bsm Allah" then start

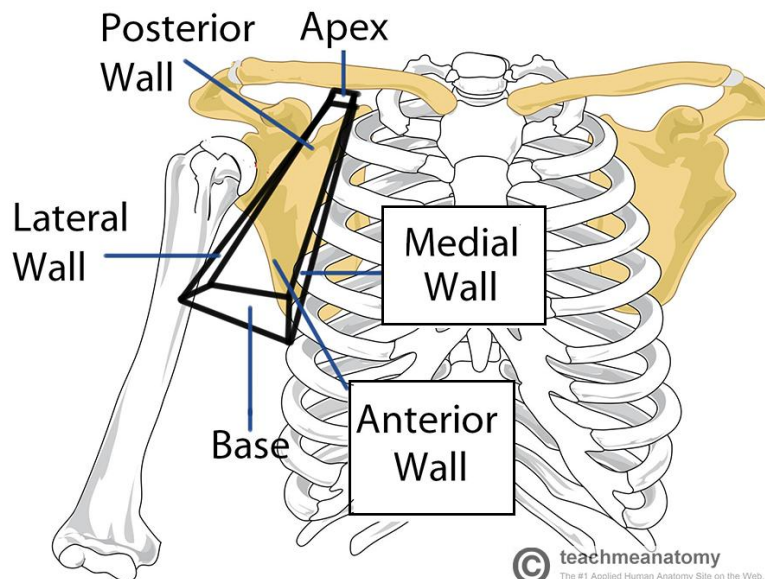
Pectoral Muscles:

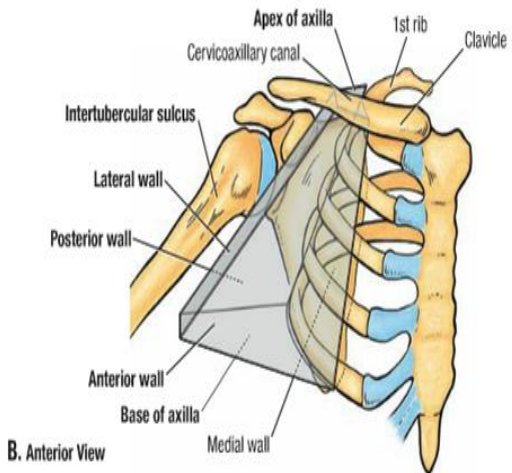
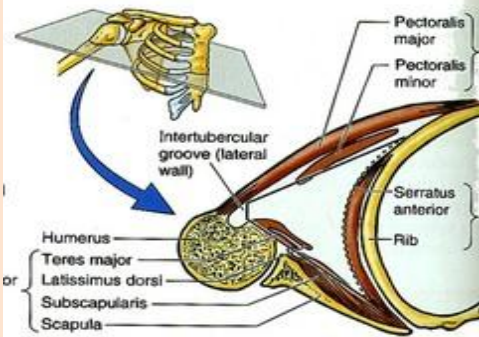
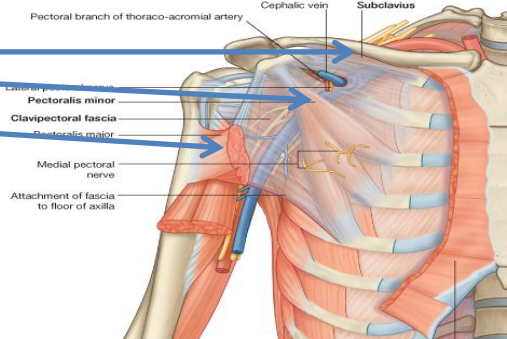
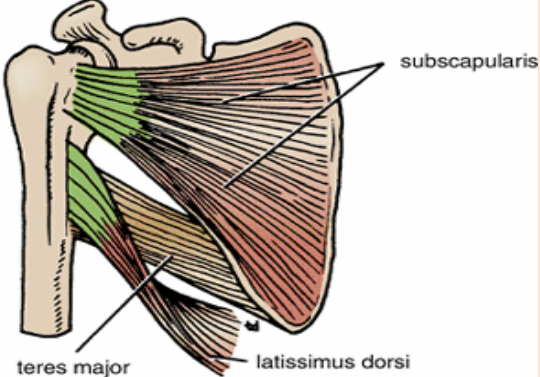
muscles	Origin	Insertion	Nerve supply	Action
<p>Pectoralis major</p> 	<p>Clavicular head:</p> <ul style="list-style-type: none"> - From medial ½ of the front of the clavicle. <p>Sternocostal head:</p> <ul style="list-style-type: none"> - Sternum. - Upper 6 costal cartilages. - Aponeurosis of external oblique. 	Lateral lip of bicipital groove.	Medial & lateral pectoral nerves.	<ul style="list-style-type: none"> - Adduction and medial rotation of the arm. - Clavicular head helps in flexion of arm (shoulder).
<p>Pectoralis minor</p> 	from 3 rd , 4 th , and 5 th ribs close to their costal cartilages.	coracoid process.	medial pectoral nerve.	<ul style="list-style-type: none"> - Depression of shoulder. - Draw the ribs upward and outwards during deep inspiration.
<p>Subclavius</p> 	From 1 st rib at its junction with the 1 st costal cartilage.	Subclavian groove at the inferior surface of middle 1/3 of clavicle.	Nerve to subclavius from upper trunk of brachial plexus.	Steadies the clavicle during movement of the shoulder joint.

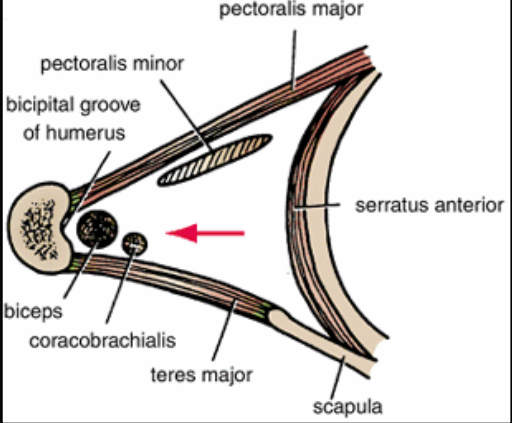
Serratus anterior	Upper eight ribs.	Ventral aspect of the medial border and inferior angle of the scapula.	Long thoracic nerve, (nerve of Bell or nerve to serratus anterior).	<ul style="list-style-type: none"> - Draws the scapula forward (protrusion, in boxing). - Rotates scapula outwards in raising the arm above 90 degree.
				

The Axilla:

- ❖ Axilla: A pyramidal shaped “هرمي” space between the upper part of the arm and the side of the chest through which major **neurovascular** structures pass between neck & thorax and upper limb.
- ❖ Axilla has an apex, a base and four walls.

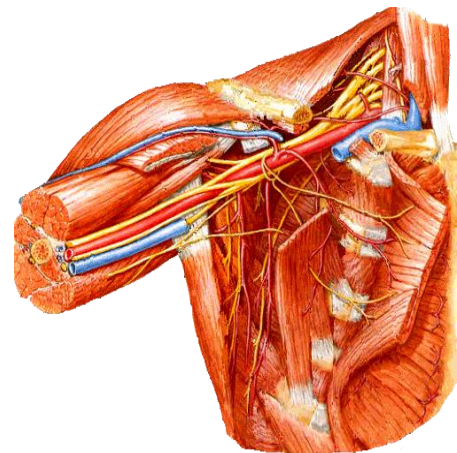


<p>Apex “called cervico-axillary canal”</p>	<ul style="list-style-type: none"> - directed upwards into the root of the neck <ul style="list-style-type: none"> - bounded, by <ul style="list-style-type: none"> - Clavicle anteriorly. - Upper border of the scapula posteriorly. - Outer border of the first rib medially. 	
<p>Base</p>	<ul style="list-style-type: none"> - Formed by skin stretching between the anterior and posterior walls. - It is bounded: <ul style="list-style-type: none"> - In front by the anterior axillary fold. - behind by the posterior axillary fold. - medially by upper 4 to 5 ribs & the chest wall. 	
<p>Anterior wall</p>	<ul style="list-style-type: none"> - Is formed by: <ul style="list-style-type: none"> - Subclavius - Pectoralis minor - Pectoralis major - Clavipectoral fascia. 	
<p>Posterior wall</p>	<ul style="list-style-type: none"> Is formed by: <ul style="list-style-type: none"> - Subscapularis - Latissimusdorsi - Teres major muscles 	

The medial wall:	Is formed by: - Serratus anterior - Upper 4 or 5 ribs & Intercostal muscles .	
The lateral wall:	Is formed by: - Coracobrachialis - Biceps brachii - Intertubercular groove of the humerus.	

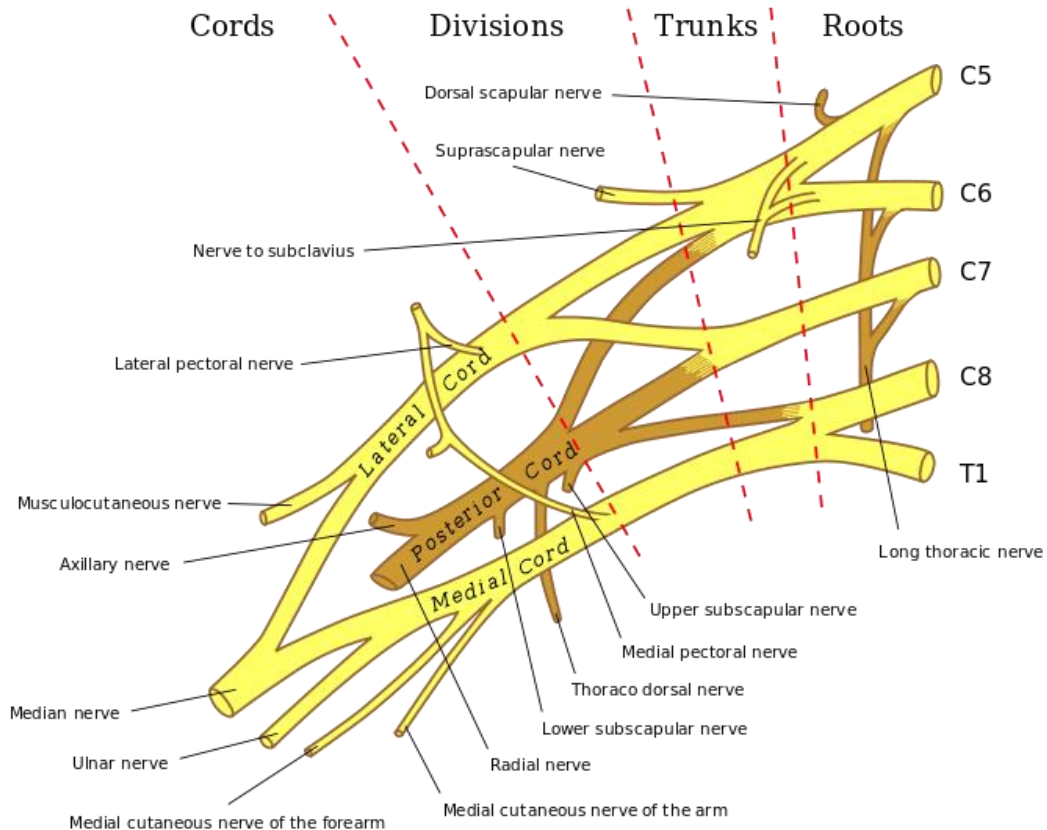
Contents of The Axilla:

- ❖ Cords and braches of brachial plexus.
- ❖ **Axillary artery and its branches.**
- ❖ **Axillary vein and its tributaries.**
- ❖ **Axillary lymph nodes.**
- ❖ Axillary fat.
- ❖ Loose connective tissue.
- ❖ B.S. The neurovascular bundle is enclosed in connective tissue sheath, called **'axillary sheath'**



Brachial Plexus:

- ❖ **Brachial Plexus** is a **network of nerves** that present at the root of the neck to enter the upper limb.
- ❖ Brachial Plexus is present in **the posterior triangle of the neck & axilla**.
- ❖ It is formed by the union of the **anterior Rami of the C 5th, 6th, 7th & 8th and the 1st thoracic spinal nerve**.
 - The roots of **C5 & C6** unite to form → **Upper trunk**
 - The root of **C7** continues as the → **Middle trunk**
 - The roots of **C8 & T1** unite to form → **Lower trunk**



- ❖ The Plexus can be divided into 5 stages:
 - ❖ **Roots**: in the posterior of the neck.
 - ❖ **Trunks**: in the posterior of the neck.
 - ❖ **Divisions**: behind the clavicle (apex of the axilla).
 - ❖ **Cords**: in the axilla.
 - ❖ **Branches**: in the axilla.

ROOT:

The five roots are the five anterior rami of the spinal nerves, after they have given off their segmental supply to the muscles of the neck. The brachial plexus emerges at five different levels; C5, C6, C7, C8, and T1.

Trunk:

These roots merge to form **three trunks**:

- "superior" or "upper" (C5-C6)
- "middle" (C7)
- "inferior" or "lower" (C8, T1)

Division:

- 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 three trunks join to form the Posterior cord.

Notes: Cords are named according to their relation to the 2nd part of the axillary artery

Cords:

- These six divisions will regroup to become the **three cords**. The cords are named by their position with respect to the axillary artery.

- The **posterior cord** is formed from the three posterior divisions of the trunks (C5-C8,T1)
- The **lateral cord** is the anterior divisions from the upper and middle trunks (C5-C7)
- The **medial cord** is simply a continuation of the anterior division of the lower trunk (C8,T1).
 - SEE THE DIGRAM ABOVE TO UNDERSTAND CLEARLLY.

Branches:

Lateral cord	Medial cord	Posterior cord
Lateral pectoral nerve.	Medial pectoral nerve.	Axillary nerve.
Musculocutaneous nerve.	Ulnar nerve.	Radial nerve.
Median nerve (lateral root).	Median nerve (medial root).	Upper & lower subscapular nerves.
	Medial cutaneous nerve of arm & forearm.	Thoracodorsal or N. to latissimusdorsi.

How to memorize them?

- Lateral Cord Branches:
 - LLM "Lucy Loves Me" - Lateral pectoral, Lateral root of the median nerve, Musculocutaneous.
- Medial Cord Branches:
 - MMMUM "Most Medical Men Use Morphine" - Medial pectoral, Medial cutaneous nerve of arm, Medial cutaneous nerve of forearm, Ulnar, Medial root of the median nerve.
- Posterior cord branches
 - STAR - Subscapular (upper and lower), Thoracodorsal, Axillary, Radia.

SUMMARY

- ❖ **Muscles of the pectoral region are connecting the upper limb with anterior and lateral thoracic wall:**
 - Pectoralis major.
 - Pectoralis minor.
 - Subclavius.
 - Serratus anterior.
- ❖ **The axilla** is a 4 side pyramid situated between the upper part of arm and the side of the chest, it has 4 walls (anterior, posterior, medial and lateral), base, and apex.
- ❖ **The axilla** is an important space as it transmits the neurovascular bundle from the neck and thorax to the upper limb.
- ❖ **It contains:**
 - Axillary vessels.
 - Cords and branches of the brachial plexus.
 - Axillary lymph nodes, all imbedded in the axillary fat.

Remember That:

- ✓ Lateral Cord Branches:
 - LLM "Lucy Loves Me" - Lateral pectoral, Lateral root of the median nerve, Musculocutaneous.
- ✓ Medial Cord Branches:
 - MMMUM "Most Medical Men Use Morphine" - Medial pectoral, Medial cutaneous nerve of arm, Medial cutaneous nerve of forearm, Ulnar, Medial root of the median nerve.
- ✓ Posterior cord branches
 - STAR - Subscapular (upper and lower), Thoracodorsal, Axillary, Radia.

Multiple Choice Questions

Q1- The anterior divisions of the upper and middle trunks unite to form?

A- Lateral cord.B- Medial cord.C- Posterior cord.

Q2- Which one of them is directed upwards into the root of the neck?

A- Medial Wall. B- Base. C- Apex.

Q3- The insertion of the pectoralis major muscle?

A- coracoid process.B- Lateral lip of bicipital groove.C- Subclaviangroove Wall.

Q4- The axilla is major neurovascularstructures pass between neck & thorax and upper limb?

A- True. B- False

Q Ans. :

1- A 2- C 3- B 4- A