



MED437
KING SAUD UNIVERSITY



Muscles of the Back

Lecture 6



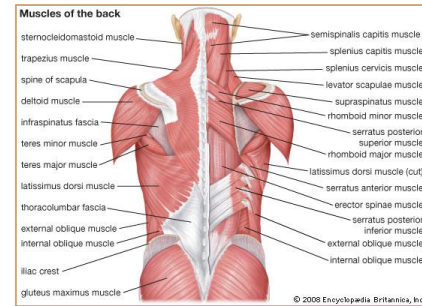
Please check our [Editing File](#).

هذا العمل لا يعني عن المصدر الأساسي للمذاكرة

{ وَمَنْ يَتَوَكَّلْ عَلَى اللَّهِ فَهُوَ حَسْبُهُ }

Objectives

- Distinguish between the different groups of back muscles.
- Compare between groups of back muscles as regard their nerve supply and action.
- List the back muscles of each group.
- Describe the attachments of each muscle of the superficial group, as well as, its nerve supply and action.
- Describe the triangles of back and their clinical significance.



- 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

Back Muscles

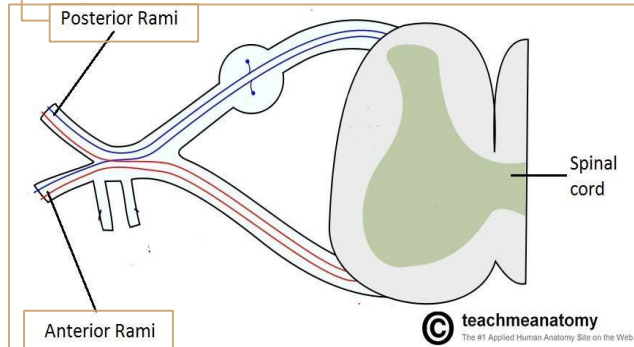
They organized into 2 groups:

Intrinsic muscles
) Develop in the back(

- 1 Deep group:

Attached to & move **vertebral column & head.**

Supplied by:



Extrinsic muscles

) Not develop in the back(

- 2 Intermediate group:

Attached to **Ribs**, may serve **Respiratory Functions.**

- 3 Superficial group:

Attached to & involved movements of **Upper limb.**

Supplied by:

- 1 Deep Group of Back Muscles



*أثناء استرخاء العضلة تكون فيه كمية قليلة من ال fibers تكون في حالة انقباض هذا المقصود بال tone.

**الانقباض الجزئي المستمر والسلبى للعضلة أثناء استرخائها هو المسؤول عن المحافظة على التقوس الطبيعي للعمود الفقري.

Deep muscle group is formed of three muscle layers: Deep, Intermediate and Superficial i.e. Erector Spinae (which we are studying now).

- They Extend from **Sacrum to the base of the Skull**
- **Action:**

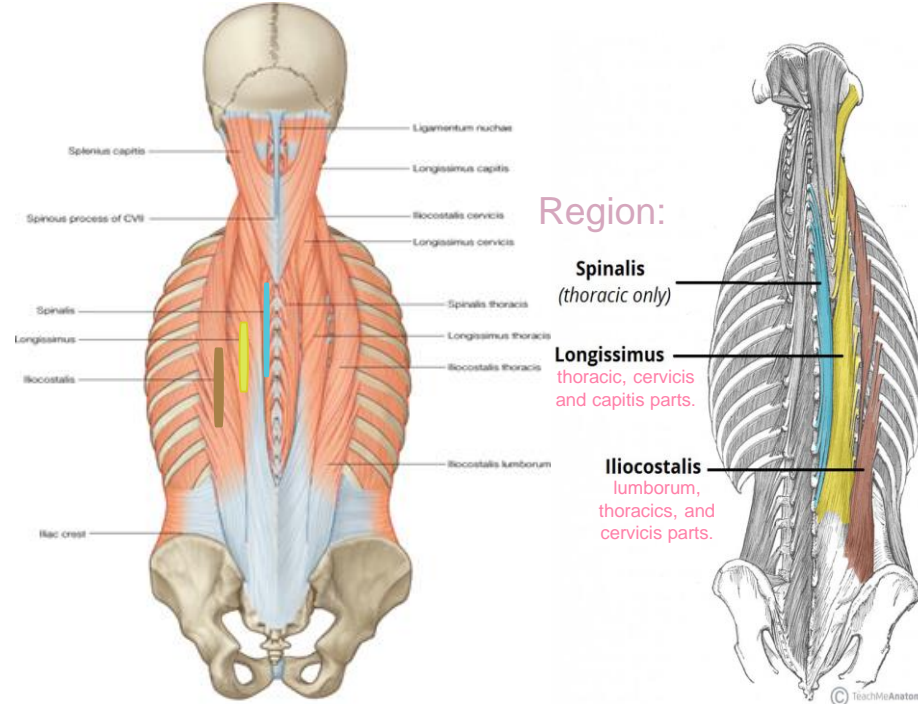
Extensors and **Rotators** of head and vertebral column. So, it is a set of muscles that straighten and rotate the back.
(detcere ydob ruo peek yehT)

- Their **Tone*** is responsible for maintenance of normal curvature of vertebral column**.

The **largest muscle** of this group is "**Erector Spinae** "which is formed of 3 vertical columns (Arranged from lateral to medial as):

I Love Spaghetti Muscles =) (from lateral to medial(

- **Iliocostalis** Ilio=ilium costa=from rib.
- **Longissimus**= (اسمك طويل +تنطق على وزن كريسمس) Long issimus
- **Spinalis** The nearest Muscle to the spinal cord.
-)Note the length and attachment of the muscle fibers.(



- ٢ Intermediate Group of Back Muscles



- It is separated from the deep group by **Thoracolumbar Fascia**.
- It includes two muscles :
 - **Serratus posterior superior**. (rotavele bir)
 - contributes in deep inspiration.
 - Originate in: C^{٥-٧} :ni tresnl .١T-٦th Ribs.
 - **Serratus posterior inferior**. (rosserped bir)
 - contributes in forced expiration.*
 - Originate in: T.sbiR rewoL ruoF :ni tresnl .١٢T-١١
- **Nerve supply:**
 - Anterior rami of **Thoracic spinal nerves**.



Action

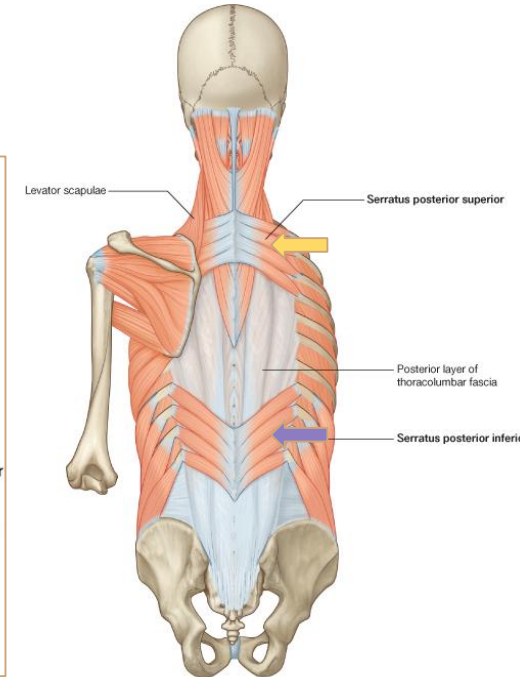
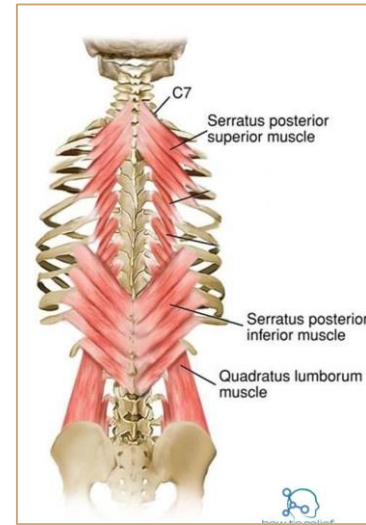
(rotavele bir)

(rosserped bir)

Team
*In case of asthma or excessive exercise

Fascia: is a band or sheet of connective tissue, primarily collagen, beneath the skin that attaches, stabilizes, encloses, and separates muscles and other internal organs

اسمها Serratus لأنها مأخذه شكل المنشار و مأخذه شكل المنشار لأن ال insertion في ال Ribs.



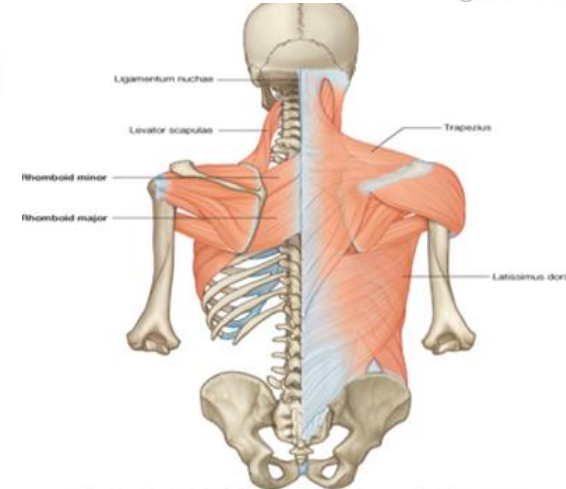
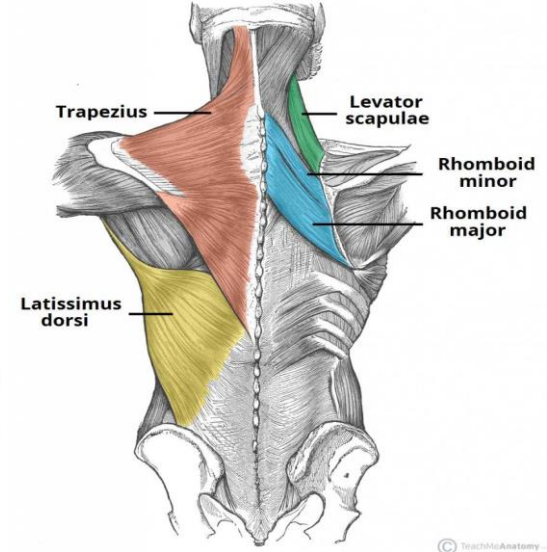
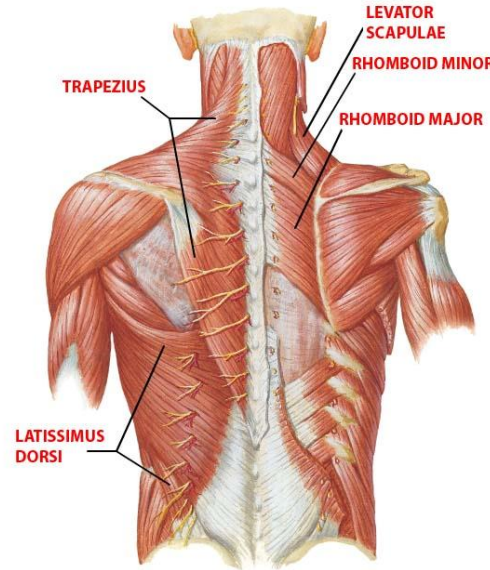
Muscles

Includes TWO sets of muscles:

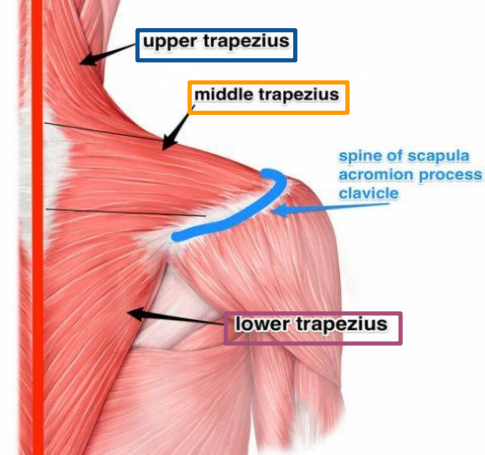
- Muscles connecting **Vertebral Column** to **Scapula** (move scapula through shoulder girdle joints):
 - Trapezius**
 - Levator scapulae**
 - Rhomboid minor**
 - Rhomboid major**
- Muscles connecting **Vertebral Column** to **Humerus** (move humerus through shoulder joint):
 - **Latissimus dorsi**

Team ٤٣٦

#Levator# = معيني الشكل رافعة. Rhomboid =



A. TRAPEZIUS

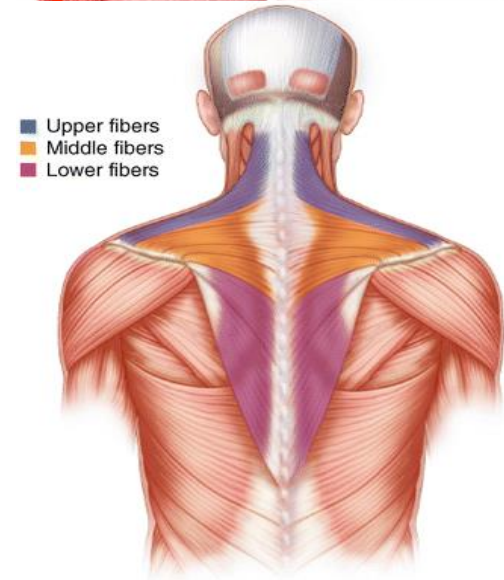


- **Origin:**
 - Spines of Cervical & Thoracic Vertebrae (١٢-١٠)
- **Insertion:**
 - Lateral 1/3 of Clavicle + Acromion & Spine of Scapula.
- **Action:**
 - Rotation of scapula during abduction of humerus above horizontal ($90^\circ <$)

- **Upper fibers:**
 - Elevate scapula.
- **Middle fibers:**
 - Retract scapula.
- **Lower fibers:**
 - Depress scapula.

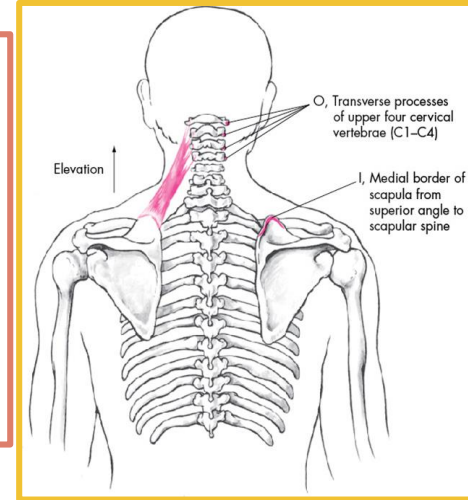
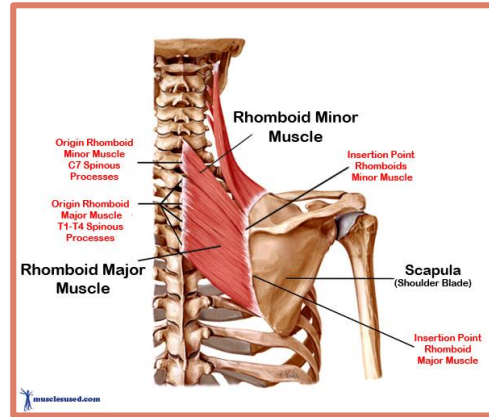
Combination of these muscles allow the rotation of Scapula.

- Elevate. يرفع:
- Retract. يسحب أو ينكمش:
- Depress. يخفض:

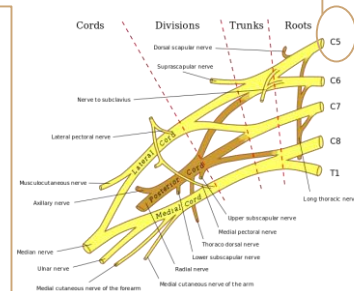


B,C,D. Levator Scapulae, Rhomboid Major & Minor

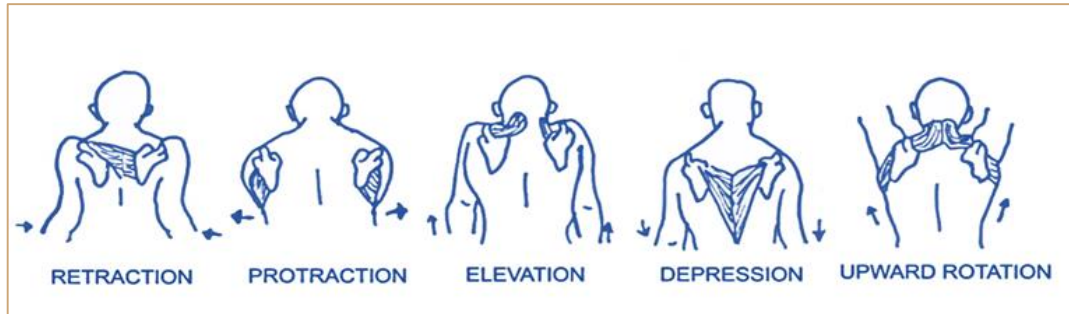
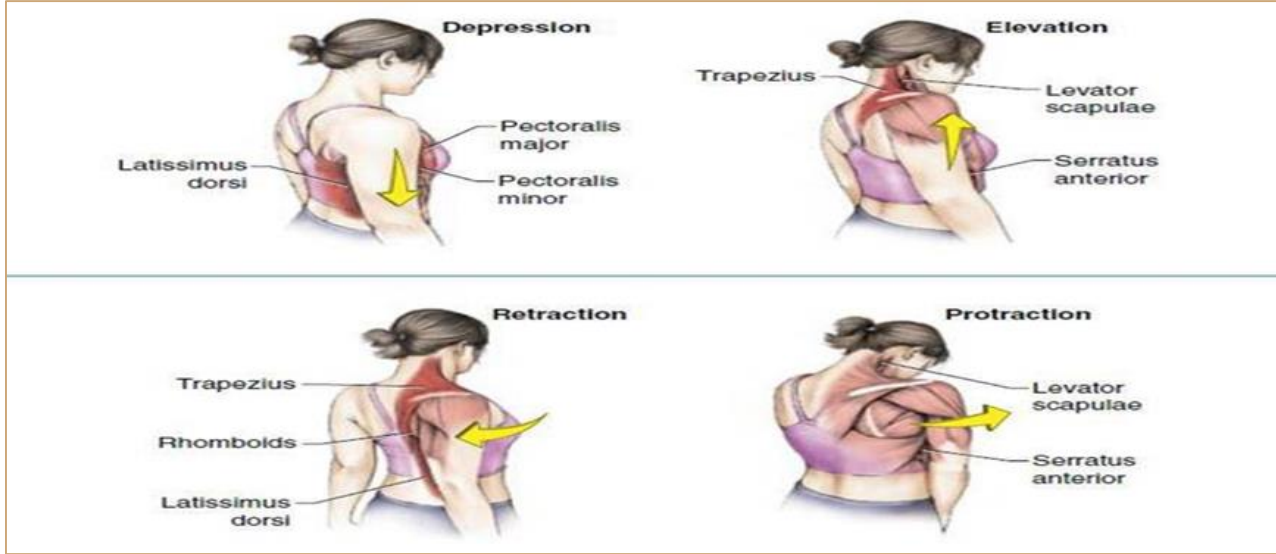
- **Origin:**
 - **Levator Scapulae:**
 - Cervical **transverse processes** .(C-C)
 - **Rhomboid Major & Minor:**
 - Thoracic **spines** .(T-YC :roniM .°T-YT :rojaM)
- **Insertion:**
 - medial border of Scapula
 - Rhomboid Major: Below the spine.
 - Rhomboid Minor: Opposite to the spine.
 - Levator Scapulae: Above the spine.
- **Actions:**
 - **Levator scapulae:**
 - **Elevates** scapula.
 - **Rhomboid Major & Minor:**
 - **Retract** scapula.)Have the same function as the middle fibers of Trapezius(
- **Nerve supply :**
 - Dorsal scapular nerve **From root of brachial plexus*** (C°)



*Brachial plexus: a network of nerves formed by the anterior rami of the lower four cervical nerves and first thoracic nerve. This plexus extends from the spinal cord. And we will study it in details later.



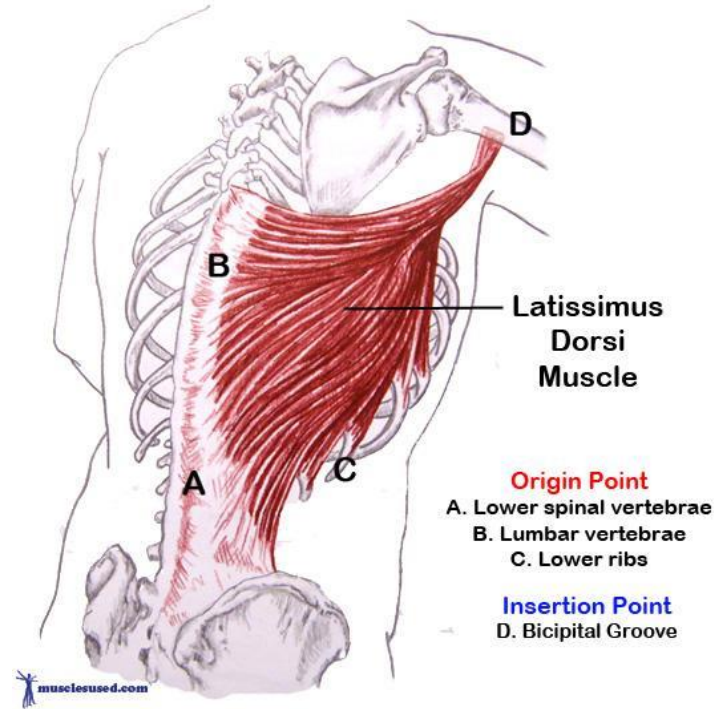
Addition



Latissimus Dorsi




- **Origin:**
 - **Spines** of Thoracic & **Lumbar** vertebrae (T1 to Upper back of Sacrum, Iliac crest and four lower Ribs).
- **Insertion:**
 - Bicipital (Intertubercular) groove of **Humerus**.*
- **Actions:**
 - **Extension, Adduction** & Medial **Rotation** of Humerus (arm, shoulder joint). It is called the climbing muscle.
- **Nerve supply :**
 - **Thoracodorsal** nerve, from the axillary nerve (C5, C6, C7)

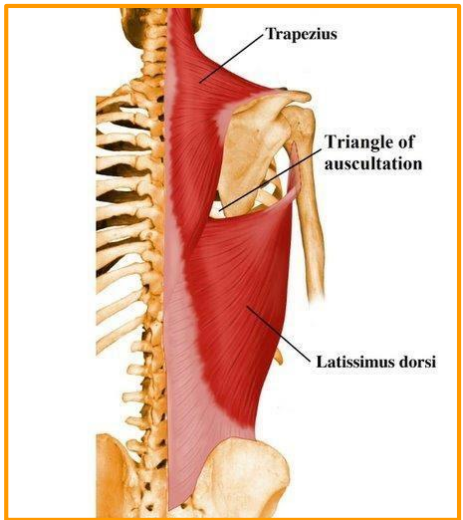
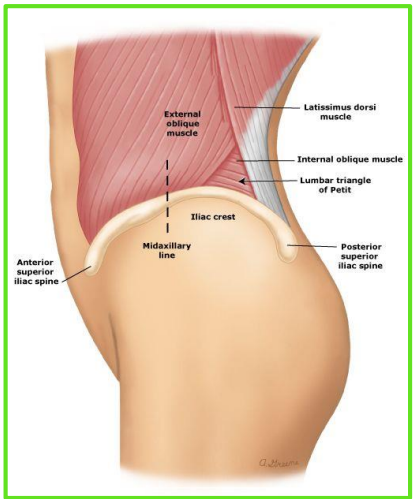
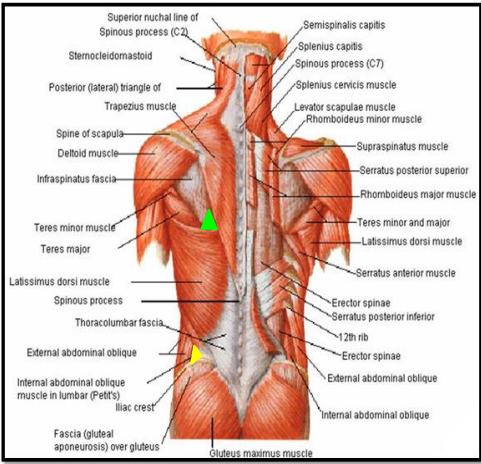
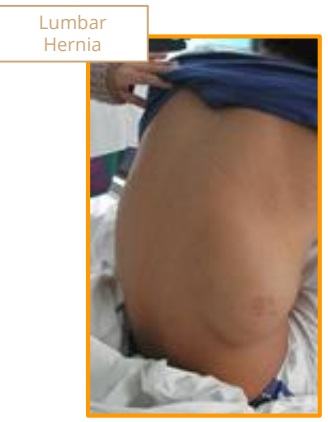


*Bicipital groove of Humerus has medial and lateral Prominences (lips) which other muscles attach to it, while this muscle attaches inside the groove between the lips (floor of bicipital groove).

Very Important!!!!

Muscular triangles of back




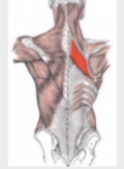

<p>Auscultatory Triangle</p>	<p>Lumbar Triangle  Triangle of Petit</p>
<p>Boundaries:</p> <ul style="list-style-type: none"> - Latissimus dorsi. - Trapezius. - medial border of Scapula. 	<p>Boundaries :</p> <ul style="list-style-type: none"> - Latissimus dorsi. - Posterior border of External Oblique muscle of the abdomen. - Iliac crest .
<p>Site sdnuos htaerb erehw : a htiw draeh ylisae tsom era .epocshtets</p>	<p>Site lanimodba na fo : yam sup erehw ro ;*ainreh lanimodba eht morf egreme lanimodba-artxe ni llaw .ssecsba rabmul</p>



Team ٤٣٦

: تسمّعي Auscultatory فتق. #Hernia

Summary of Superficial muscles

		Muscle	Origin	Insertion	Action	Nerve supply	
SUPERFICIAL GROUP OF BACK MUSCLES	Muscles connecting vertebral column to scapula (move scapula through shoulder girdle joints)	Trapezius	Spines of cervical & Thoracic vertebrae	lateral 1/3 of clavicle + acromion & spine of scapula.	rotation of scapula during abduction of humerus above horizontal. 1. Upper fibers: elevate scapula. 2. Middle fibers: retract scapula 3. Lower fibers: depress scapula.	Spinal part of accessory (11th cranial) nerve	
		Levator scapulae	cervical transverse processes	medial border of scapula	elevates scapula	dorsal scapular nerve (from root of brachial plexus 'C5')	
		Rhomboid minor	thoracic spines	medial border of scapula	retract scapula.	dorsal scapular nerve (from root of brachial plexus 'C5')	
		Rhomboid major	thoracic spines	medial border of scapula	retract scapula.	dorsal scapular nerve (from root of brachial plexus 'C5')	
	Muscle connecting vertebral column to humerus (move humerus through shoulder joint)	Latissimus dorsi (climbing muscle)	spines of thoracic & lumbar vertebrae	bicipital groove of humerus	extension, adduction & medial rotation of humerus (arm, shoulder joint).	thoracodorsal nerve. (C6,7,8) From posterior cord of brachial plexus	

Summary

group	Muscle	Origin	Insertion	Innervation	Function	
Deep	The largest muscle of this group is "Erector Spinae" formed of 3 vertical columns (<i>from lateral to medial</i>): <u>Iliocostalis</u> , Longissimus, Spinalis.	Sacrum	Skull	Posterior Rami of spinal nerves	straighten and rotate the back. extensors and rotators of head & vertebral column	
Intermediate	Serratus posterior superior	–	–	anterior rami of thoracic spinal nerves.	<u>deep</u> inspiration.	
	Serratus posterior inferior				forced exp iration	
Superficial Muscles connecting vertebral column to	Scapula	Trapezius	Spines of Cervical and Thoracic Vertebrae	lateral 1/3 of clavicle + acromion & spine of scapula.	11th cranial nerve (accessory)	Upper fibers: elevate scapula Middle: retract scapula Lower: depress scapula
		Levator Scapulae	Cervical transverse process	Medial border of scapula	Root of brachial plexus C5	Elevate scapula
		Rhomboid Major	Thoracic spines	Medial border of scapula	Root of brachial plexus C5	Retract Scapula
		Rhomboid Minor	Thoracic Spines	Medial border of scapula	Root of brachial plexus C5	Retract scapula
	Humerus	Latissimus Dorsi	Spines of Thoracic and Lumbar Vertebrae	<u>Bicipital</u> groove of the humerus	Thoracodorsal nerve C6,7,8	Extension, adduction, and medial rotation of humerus"climbing"

MCQ:

Flash cards test:

- 1 Which one of the following is the largest muscle of deep muscles of back group ?

- A- Trapezius.
- B- Serratus posterior superior.
- C- Erector spinae.
- D- Latissimus Dorsi.

- 2 Which nerve supplies the intermediate group of back muscles ?

- A- Anterior rami of thoracic spinal nerves
- B- Posterior rami of thoracic spinal nerves .
- C- Dorsal scapular nerve
- D- Thoracodorsal nerve.

- 3 Muscles that attached to & move vertebral column & head?

- A- Deep muscles.
- C- Intermediate group.

- 4 the Pus may merge from?

- A- Auscultatory triangle.
- C- Petit triangle.
- B- Lumbar triangle.
- D- C&B.

- 5 Which nerve supplies the trapezius muscle?

- A- Dorsal scapular nerve.
- B- 11th Cranial nerve .
- C- 11th Cranial nerve.
- D- Posterior rami of spinal cord.

- 6 What s the function of upper fiber of trapezius?

- A- Depress scapula.
- B- Elevate scapula.
- C- Retract scapula.
- D- Rotate scapula.

Team Members

Lamia Abdullah Alkuwaiz (Team Leader)

Rawan Mohammad Alharbi

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 Almuhanana
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
Sara Alsultan
Shahad Alzahrani
Wafa Alotaibi
Wejdan Fahad Albadrani
Wjdan AlShamry

Faisal Fahad Alsaif (Team Leader)

Abdulaziz Al dukhayel

Fahad Alfaiz
Akram Alfandi
Saad Aloqile
Saleh Almoaiqel
Abdulaziz Alabdulkareem
Abdullah Almeaither
Yazeed Aldossari
Muath Alhumood
Abdulrahman Almotairi

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

Abdulmajeed Alwardi
Abdulrahman Alageel
Rayyan Almousa
Sultan Alfuhaid
Ali Alammari
Fahad Alshughaihry
Fayez Ghiyath Aldarsouni
Mohammed Alquwayfili

Abduljabbar Al-yamani
Sultan Al-nasser
Majed Aljohani
Zeyad Al-khenaizan
Mohammed Nouri
Abdulaziz Al-drgam
Fahad Aldhowaihy
Omar alyabis