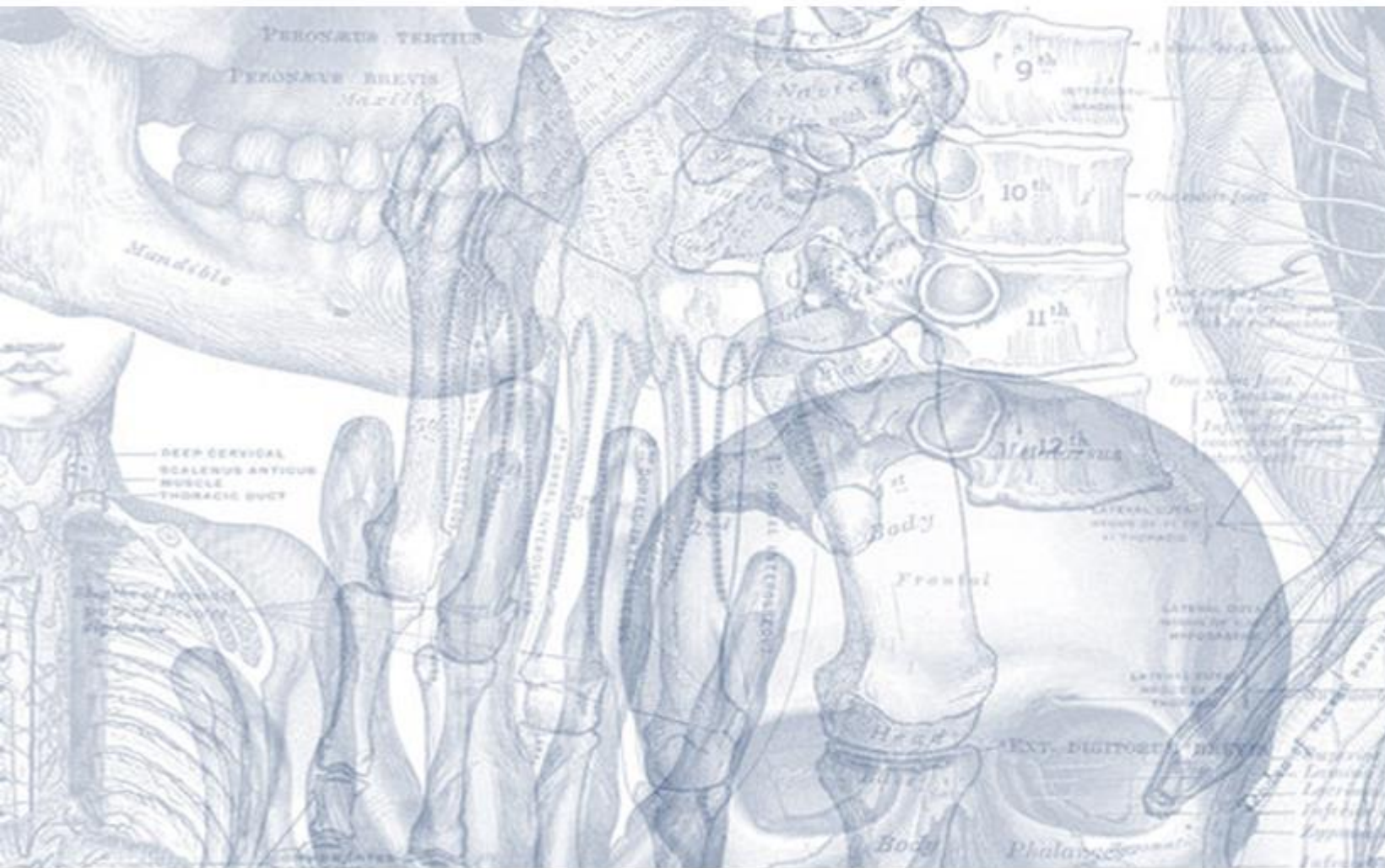


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Muscles Of The Back

[Editing File](#)

Revised by

شوق الأحمرى & طراد الوكيل

Color Code

● Important

● Doctors Notes

● Notes/Extra explanation

Objectives :

At the end of the lecture, students should be able to:

- 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.

Back Muscles:

They are organized into 3 groups:

1- Deep group

Attached to & involved in the movement of **Vertebral column & Head.**

2- Intermediate group

Attached to **Ribs** & serve **Respiratory Functions.**

3- Superficial group

Attached to & involved in the movement of **Upper limbs.**

Intrinsic muscles:

*Develop in the Back

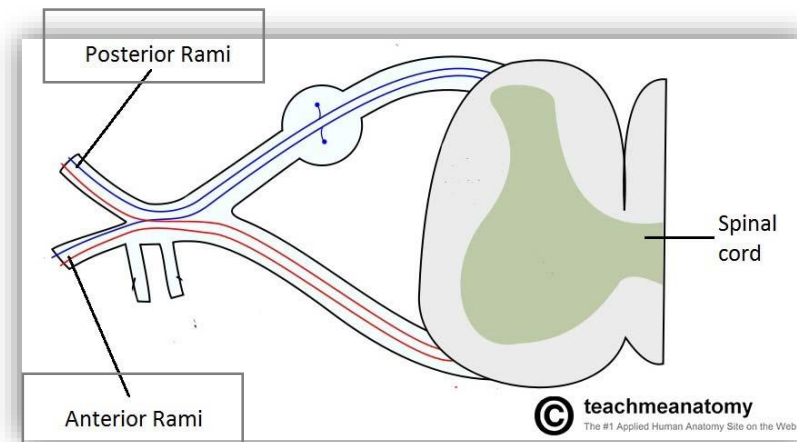
*Supplied by **Posterior Rami of spinal nerves**

Extrinsic muscles:

***Not** Developed in the Back

*Supplied by **Anterior Rami of spinal nerves**

*Exception within the slides...



للتوضيح فقط

1- Deep Group Of Back Muscles:

- They extend from **sacrum to the base of the skull**.
- They include **extensors*** and **rotators*** of head & vertebral column. So, It is a set of muscles that straighten and rotate the back.
- 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 (*from lateral to medial*):

Ilio=ilium , costa= from rib **iliocostalis,**

لتسهيل الحفظ : اسمك طويل = لوقت اسمس ☺ **Longissimus**

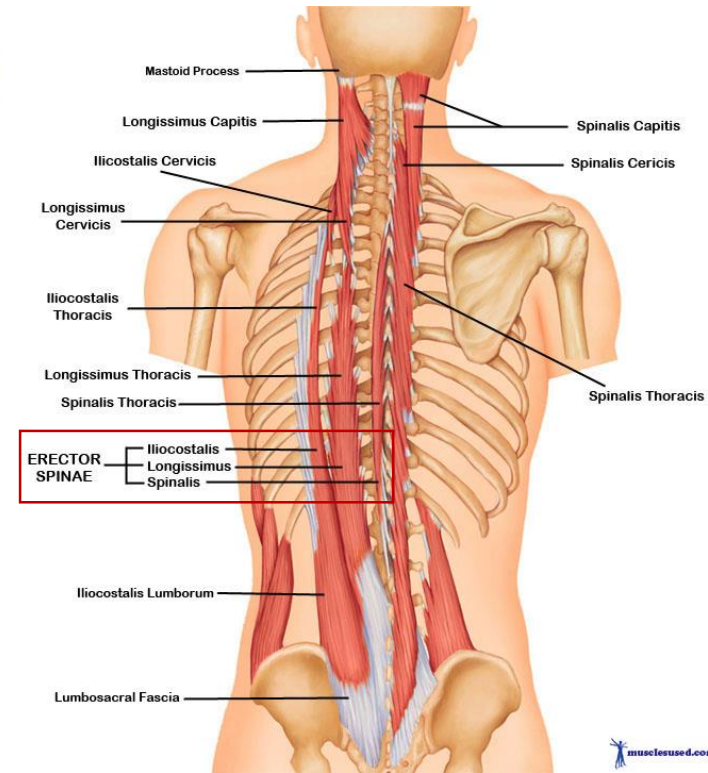
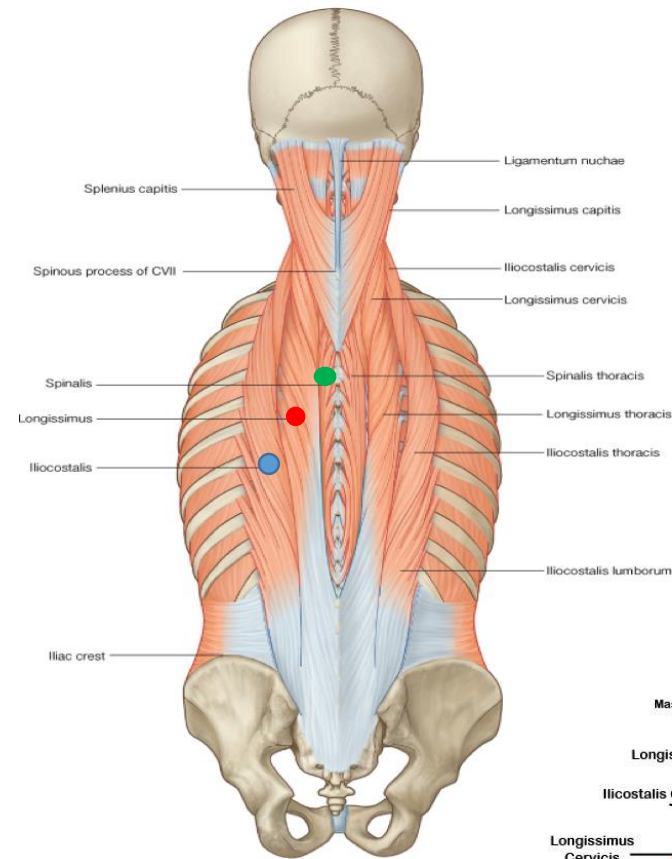
spinalis.

(Note the length and attachment of the muscle fibers)

Extensor: a muscle whose contraction extends or straightens a limb or other part of the body.

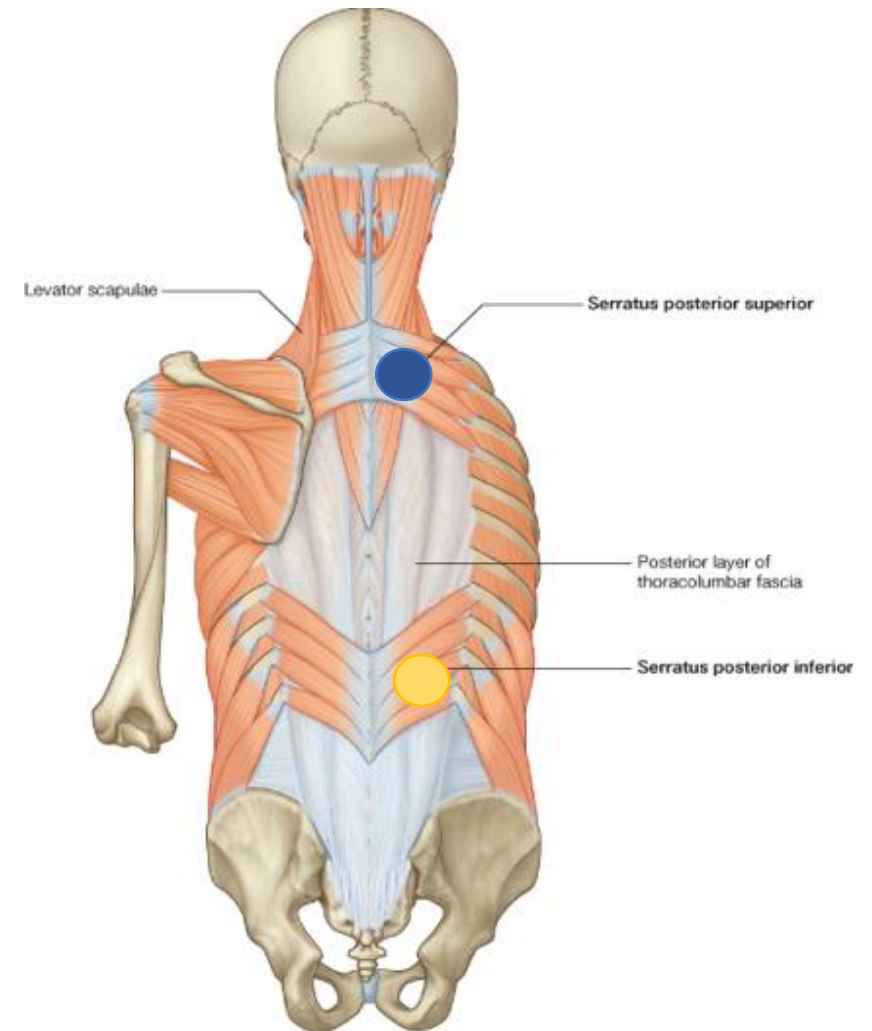
Rotator: a muscle whose contraction causes or assists in the rotation of a part of the body.

Erector: a muscle that maintains an erect state of a part of the body or an erect posture of the body.



2- Intermediate Group Of Back Muscles:

- Intermediate group is separated from the deep group by **(thoracolumbar fascia)***
- Intermediate group includes 2 muscles:
 - **Serratus posterior superior** (rib elevator).
 - **Serratus posterior inferior** (rib depressor).
- Function of:
 - Serratus posterior **superior** contributes in deep inspiration.
 - Serratus posterior **inferior** contributes in forced expiration.[^]
- Nerve supply (innervation):
anterior rami of thoracic spinal nerves.



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* غشاء يكون بعد طبقات الجلد (a sheet of connective tissue covering or binding together body structures).

[^] in case of asthma or excessive exercise.

#depressor = ينزل لتحت. #elevator = يرفع ل فوق. #Serratus = شكل منشاري.

الاسلايد مهم جدًا

3- Superficial Group Of Back Muscles:

A- Muscles connecting **vertebral column to scapula**
(move scapula through shoulder girdle joints):

Trapezius.

Levator scapulae.

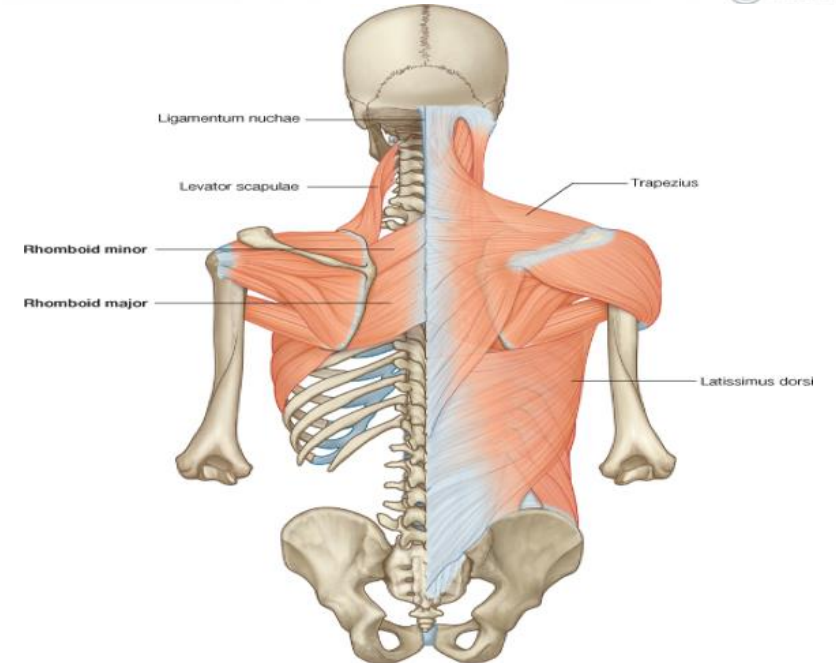
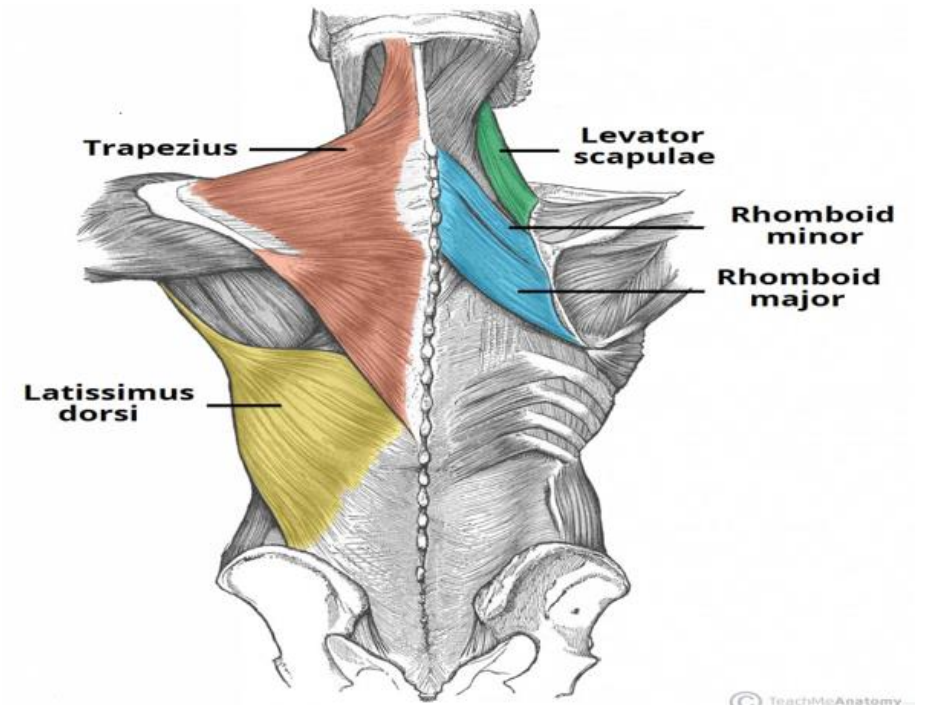
Rhomboid minor.

Rhomboid major. (Scapula) كلهم ماسكين بال

B- Muscle connecting **vertebral column to humerus**
(move humerus through shoulder joint) :

Latissimus dorsi.

#Levator = رافعة. #Rhomboid = معيّن الشكل.



3- Superficial Group Of Back Muscles:

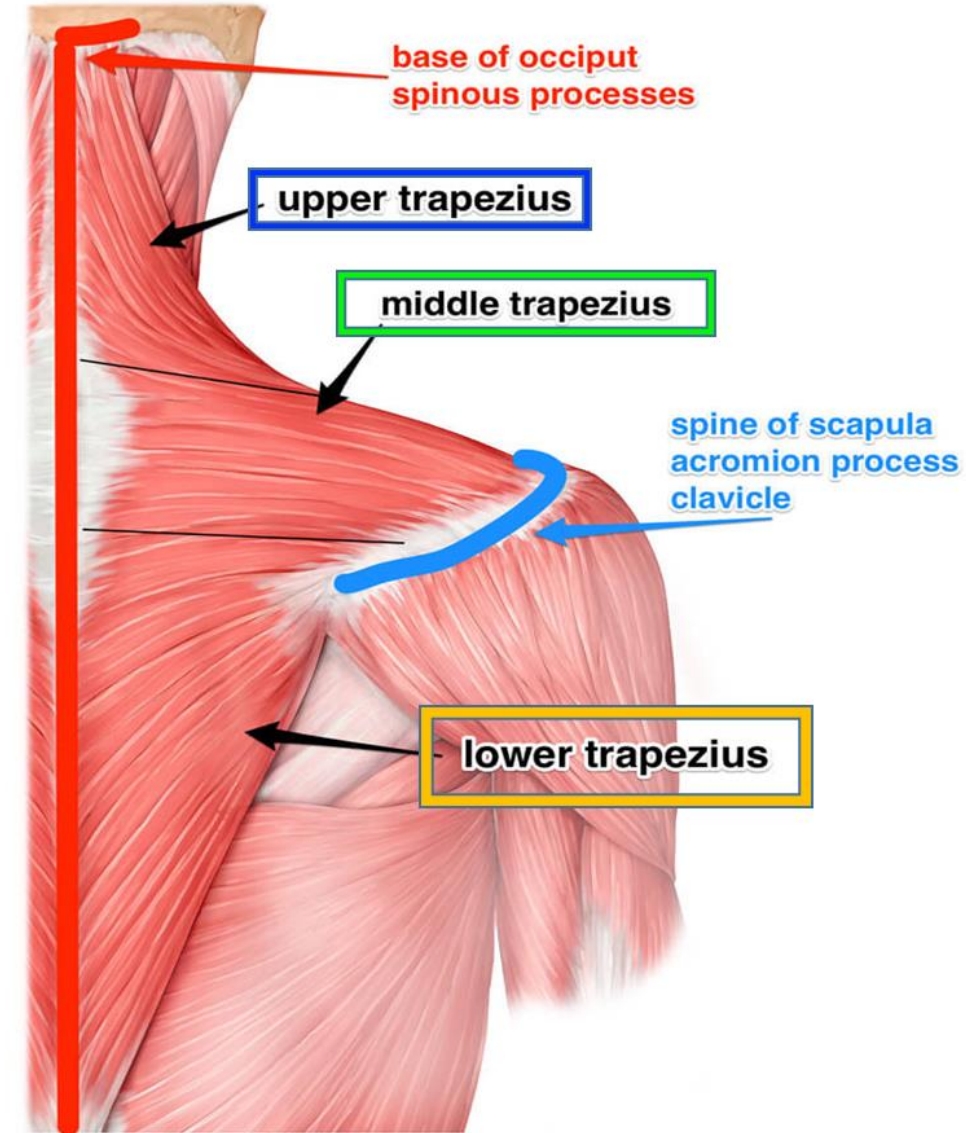
A- Muscles connecting vertebral column to **scapula**

I- TRAPEZIUS

- **Origin:**
Spines of cervical & thoracic vertebrae
- **Insertion:**
lateral 1/3 of clavicle + acromion & spine of scapula.
- **Action:**
rotation of scapula during abduction of humerus above horizontal. >90 (remember it as if you fell in a TRAP you would raise your arms above your head to try to climb out)

- o **Upper fibers:** elevate (ترفع) scapula.
- o **Middle fibers:** retract (تعيدھا لوضھا الطبيعي) scapula
- o **Lower fibers:** depress (تخفض او تنزل) scapula.

- **Nerve supply:**
Spinal part of **accessory** (11th cranial) nerve.



3- Superficial Group Of Back Muscles:

A- Muscles connecting vertebral column to **scapula**

II- LEVATOR SCAPULAE

III- RHOMBOID MINOR & MAJOR

- **Origin:**

- Levator scapulae**: cervical transverse processes

- Rhomboid minor & major**: thoracic spines

- **Insertion:**

- medial border of scapula.

- **Nerve supply:**

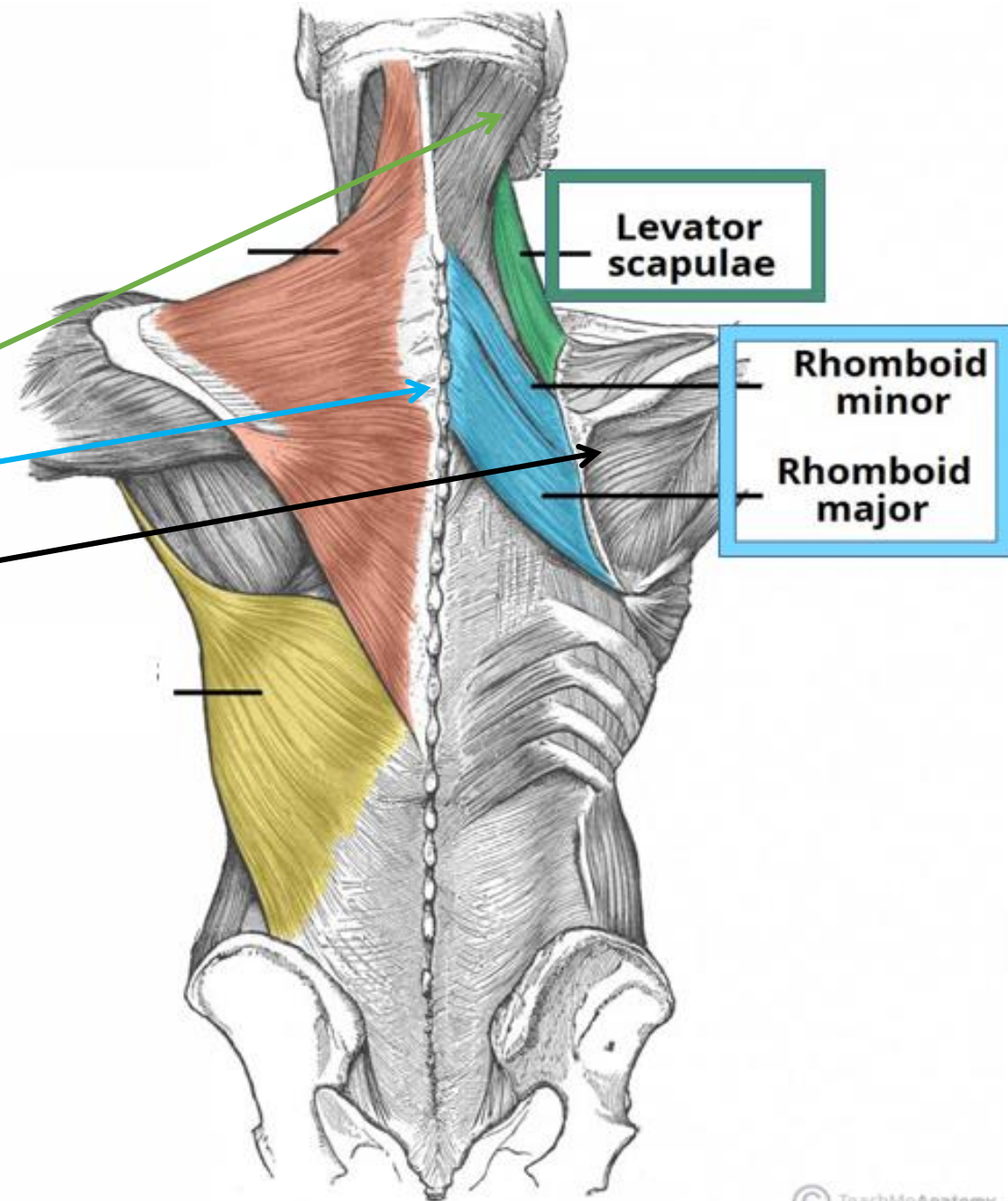
- dorsal scapular nerve. **From root of brachial plexus (C5)**

- **Actions:**

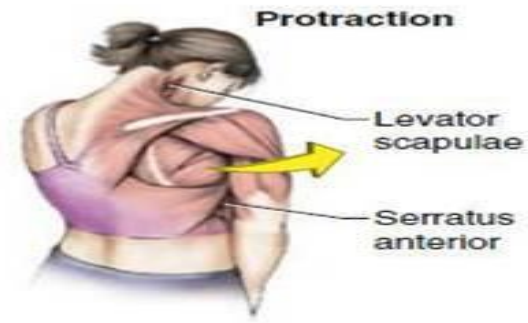
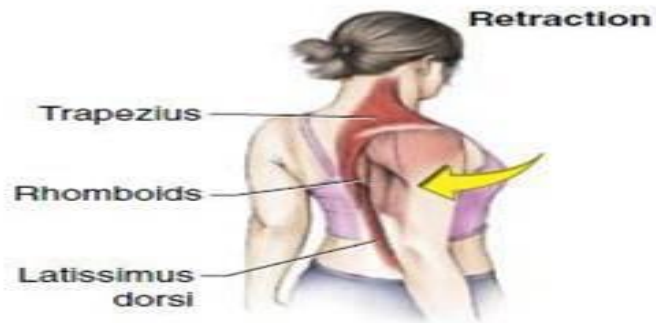
- Levator scapulae**: elevates scapula.

- Rhomboid minor & major**: retract scapula.

Note: the muscles involved in retracting the scapula:
Rhomboid major, rhomboid minor, and middle fibers of trapezium



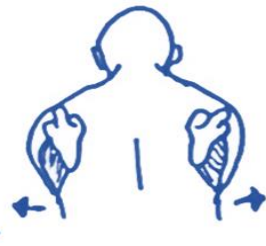
Remember:



للتوضيح فقط



RETRACTION



PROTRACTION



ELEVATION



DEPRESSION



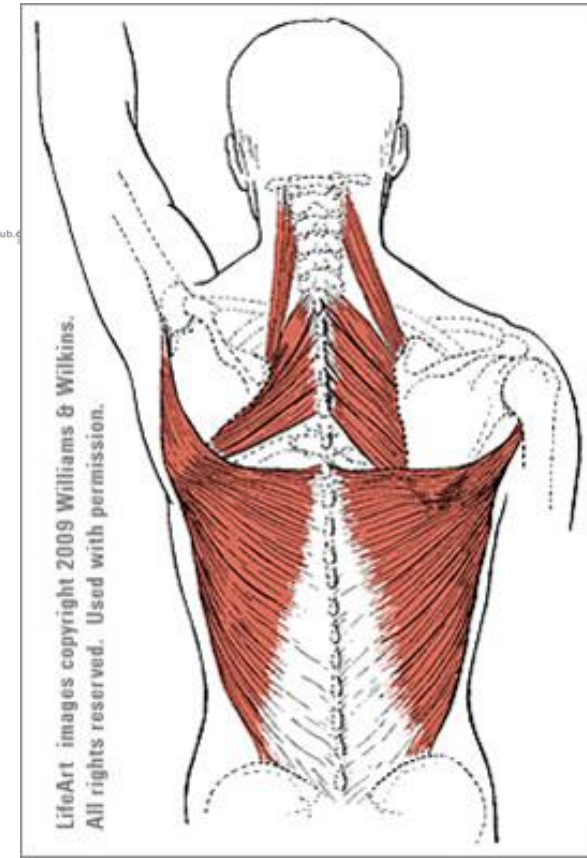
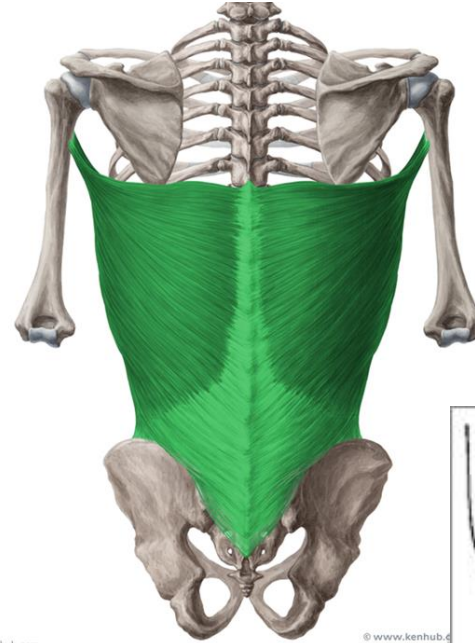
UPWARD ROTATION

3- Superficial Group Of Back Muscles:

B- Muscle connecting vertebral column to humerus

Latissimus Dorsi

- **Origin:**
spines of thoracic & lumbar vertebrae.
- **Insertion:**
bicipital groove of humerus.
- **Nerve supply:**
thoracodorsal nerve. (C6,7,8) From posterior cord of brachial plexus
(Also called nerve to latissimus dorsi)
- **Actions:**
extension, adduction & medial rotation of humerus (arm, shoulder joint).
It is called the **climbing muscle**.



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Muscular triangles of back

1- Auscultatory* Triangle:

- **Boundaries:**

- latissimus dorsi
- trapezius
- medial border of scapula.

- **Site**

where breath sounds are most easily heard with a stethoscope.



2- Lumbar Triangle: (Triangle of Petit)

- **Boundaries :**

- latissimus dorsi
- posterior border of external oblique muscle of the abdomen
- iliac crest.

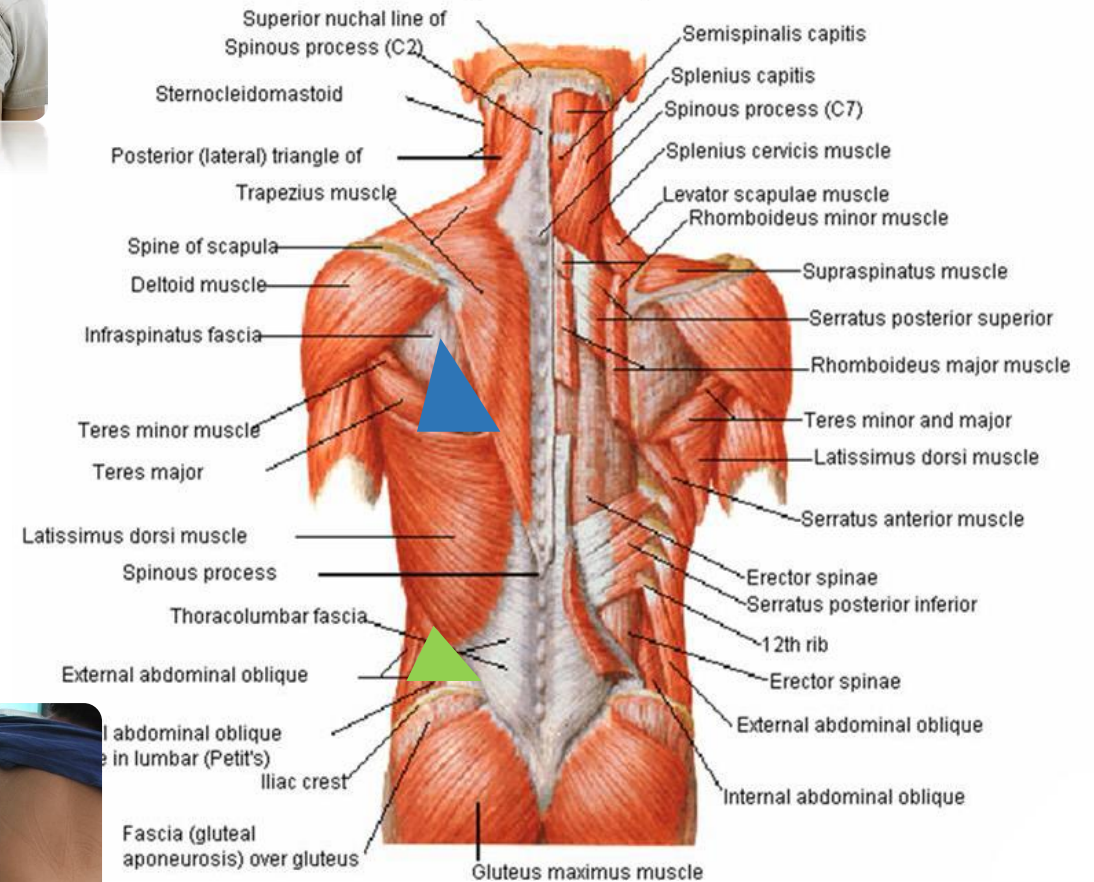
- **Site**

of an abdominal hernia*; or where pus may emerge from the abdominal wall in extra-abdominal lumbar abscess.

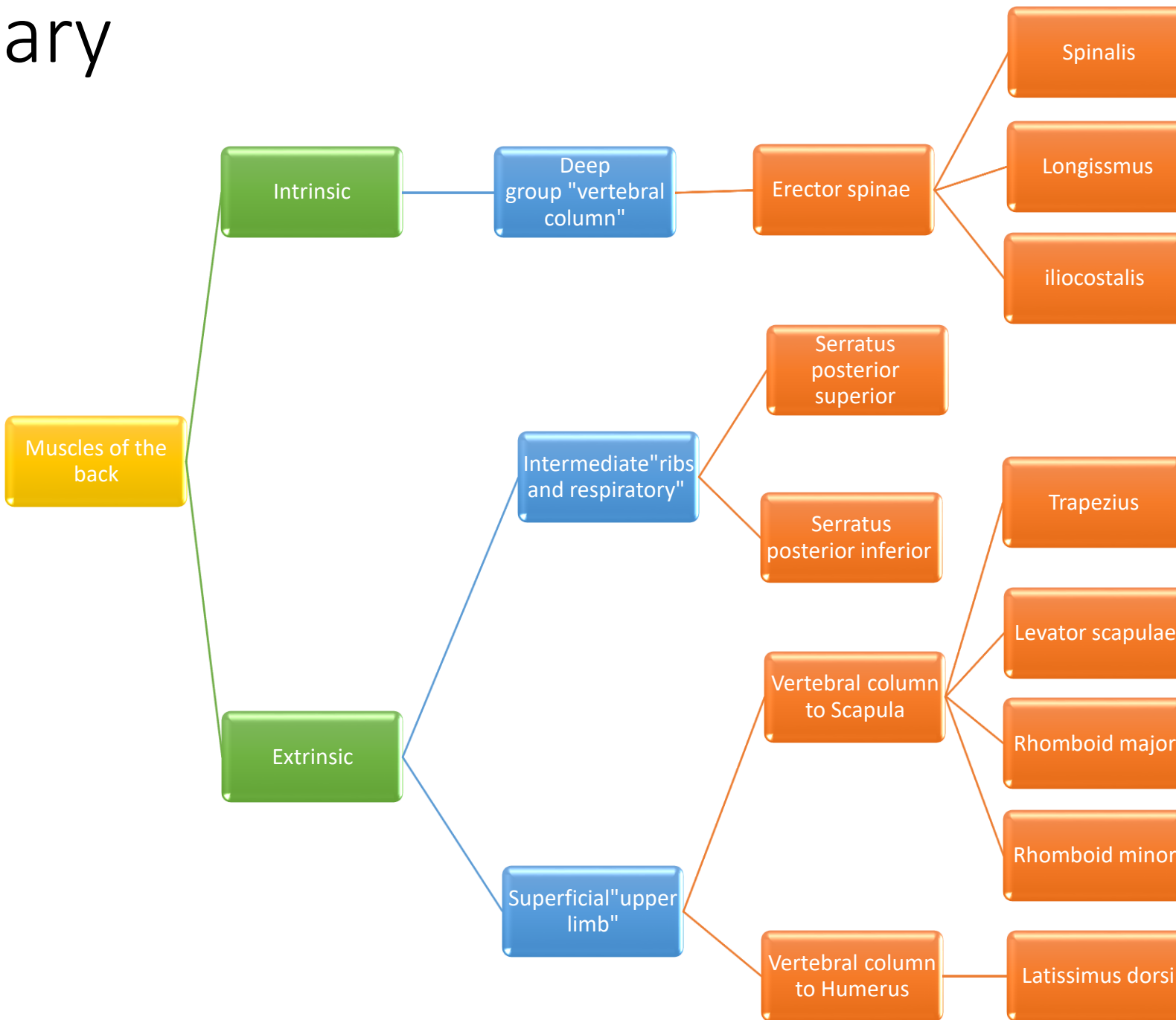


Muscles of Back

Superficial Layers



Summary



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>): iliocostalis, 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	Bicipital groove of the humerus	Thoracodorsal nerve C6,7,8	Extension, adduction, and medial rotation of humerus"climbing"

Summary



Action	Muscle
straighten and rotate the back. extensors and rotators of head & vertebral column	Muscles of deep group
rib elevator	Serratus posterior Superior
rib depressor	Serratus Posterior Inferior
Extension, adduction, and medial rotation of humerus	Latissimus Dorsi
depress scapula	Lower fibers of Trapezius
Elevates scapula	Levator Scapulae
	Upper fibers of Trapezius
Retracts scapula	Rhomboid major and minor
	Middle fibers of Trapezius

Questions:

1- Which of these spinalis, iliocostalis and longissimus lies most laterally?

- A- Spinalis
- B- Iliocostalis
- C- Longissimus
- D- They all lie in the same plane

2- Which of these groups of muscles form erector spinae?

- A- Iliocostalis- Multifidus- Spinalis
- B- Iliocostalis- Longissimus- Rotatores
- C- Spinalis- Iliocostalis- Longissimus
- D- None of the above

3- which of the following separates the intermediate group from the deep group of back muscle:

- A- thoracolumbar fascia
- B- iliac crest
- C- Intervertebral disc

4- which muscle of the following contributes in forced expiration in patient with asthma:

- A- Serratus posterior superior
- B- Serratus posterior inferior
- C- Levator scapulae.

Answers:

1-B

2-C

3-A

4-B

5- all superficial group of back muscles inserts in scapula Except:

- A- Trapezius.
- B- Levator scapulae.
- C- Latissimus dorsi

6- which of the following muscle connects the vertbral column to the humerus:

- A- levator scapulae
- B- Latissimus dorsi
- C- Trapezius

7- intermediate back muscles supplied by:

- A- The anterior rami of the lumbar spinal nerve
- B- The anterior rami of thoracic spinal nerves
- C- Spinal part of accessory (11th cranial) nerve

8- Which of the following is NOT responsible for retracting the scapula?

- A- Middle fibers of Trapezius.
- B- Rhomboid major.
- C- Latissimus dorsi
- D- Rhomboid minor

Answers:

5-C

6-B

7-B

8-C

9- Which nerve supplies the superficial and intermediate group of muscles?

- A- Anterior rami of spinal cord
- B- Posterior rami of spinal cord
- C- Radial plexus root of C5
- D- Radial plexus of C6 C7 T1

10- A patient came into the clinic with back pain due to falling. You did the clinical examination and the patient couldn't raise his left arm above horizontal line. What is the most likely affected muscles?

- A- TRAPEZIUS
- B- RHOMBOID MINOR
- C- LEVATOR SCAPULAE

11- A patient came to the neurology department after a car accident, he was told that his dorsal scapular nerve was affected. What muscle would be affected?

- A- TRAPEZIUS
- B- RHOMBOID MINOR
- C- LEVATOR SCAPULAE
- D- RHOMBOID MAJOR
- E- ALL B C and D

12- Which nerve supplies the latissimus dorsi muscle?

13- Name two of the muscle triangles of the back?

Answers:

9-A

10-A

11-E

12- thoracodorsal nerve

13-Auscultatory Triangle & Lumbar Triangle



Leaders:
نواف الخضير
جواهر ابانمي
غادة المزروع

Members:
آمال الشيبني
سمية الغامدي
نورة السهلي
ريما العتيبي
بدرية الصباغ
نجد الذيب
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