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## الأستاذ الدكتور يوسف حسين

أستاذ التشريح وعلم الأجنة - كلية الطب - جامعة الزقازيق - مصر

رئيس قسم التشريح و الأنسجة و الأجنة - كلية الطب - جامعة مؤتة - الأردن

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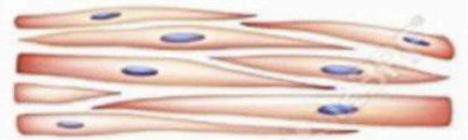
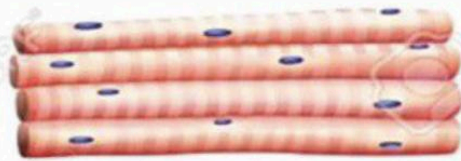
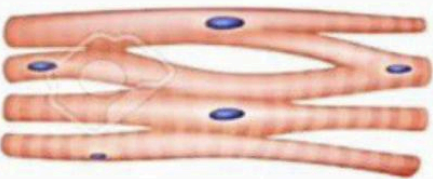
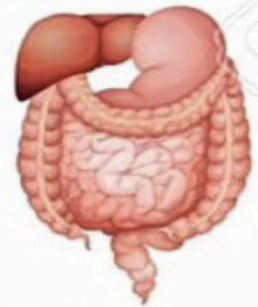
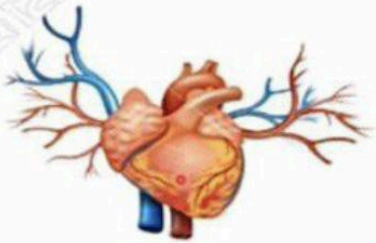
**Prof. Dr. Youssef Hussein Anatomy** اليوتيوب

جروب الفيس د. يوسف حسين (استاذ التشريح)

[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)

# Muscles

## Types of Muscle



**Cardiac muscle**

**Skeletal muscle**

**Smooth**

❖ Differences between the muscles

1- Skeletal muscles	2- Cardiac muscles	3- Smooth muscle
<p>1- muscles of the skeleton</p> <p>2- Supplied by voluntary nerves.</p> <p>3- Responsible for voluntary motor activity.</p>	<p>1- muscles of the heart.</p> <p>2- Supplied by involuntary nerves.</p> <p>3- Responsible for cardiac contractility.</p>	<p>1- muscles of the visceral wall.</p> <p>2- Supplied by involuntary nerves.</p> <p>3- Responsible for peristaltic movements (muscles of respiratory, alimentary systems).</p>

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[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)



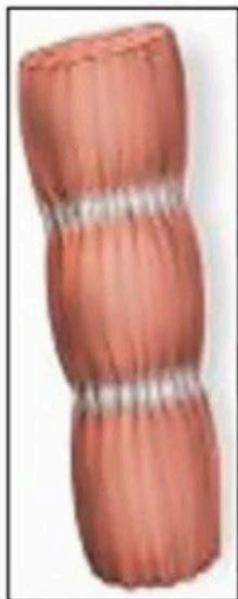
**Types of  
Skeletal Muscles**



## Parallel fibres



Strap- like  
e.g. sartorius



Strap- like with tendinous  
intersections; e.g. rectus abdominis.

Quadrilateral; e.g.  
quadratus femoris



Circular, which surround a  
body opening e.g. orbicularis  
oculi.

• **Oblique fibres**

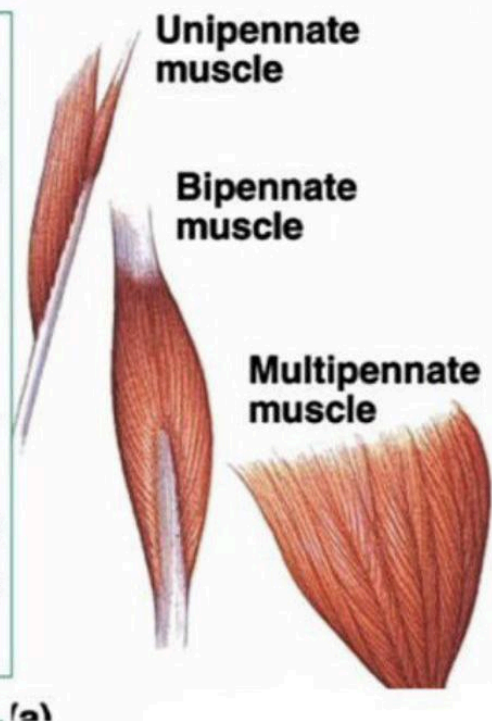
**1- Pennate (feather-like ريشة) type;** the muscle fibres run obliquely to become attached to the sides of the tendon as follows:

**a) Uni-pennate**, fibres attached to one side of the tendon e.g. **flexor pollicis longus muscle** (of the thumb).

**b) Bi-pennate**, fibres attached to both sides of the tendon e.g. **dorsal interossei muscles** (of the hand).

**c) Multi-pennate**, the muscle contains many tendinous intersections. fibres attached to both sides of each tendinous intersection in a bi-pennate arrangement e.g. **Deltoid muscle**.

**2- Triangular type;** the muscle fibres converge into a narrow terminal tendon e.g. **deltoid or temporalis muscle**



- **According to number of origin**

- Two origins (heads) as biceps
- Three origins (heads) as triceps

- **According to actions of muscles**

- Supinator muscle
- Flexor pollicis longus
- Abductor pollicis longus

- **According to attachment to bones**

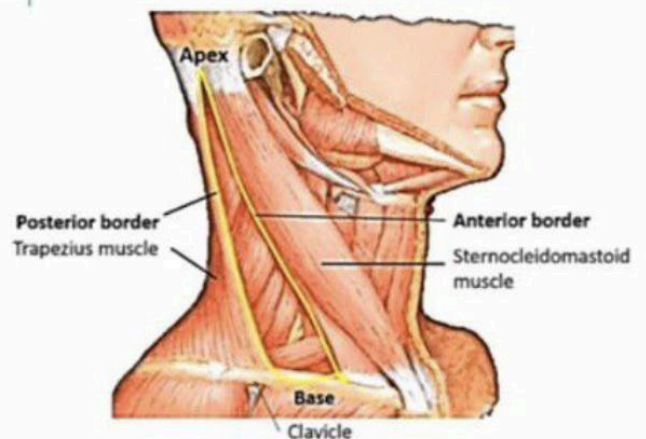
- Sternocleidomastoid muscle

- **According to length**

- Flexor pollicis longus
- Flexor pollicis brevis

- **According to the size**

- Gluteus maximus
- Gluteus medius
- Gluteus minimus



[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)





- **According to the Joint actions**

- 1- Uniarticular muscles:** Muscles acted on one Joint e.g. brachialis.
- 2- Biarticular muscle.** Muscles acted on 2 joints e.g. biceps.
- 3- Multiarticular muscles;** Muscles acted on more than 2 joints e.g. Flexor pollicis longus.

[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)

[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)



**Structures associated  
with skeletal muscles**

### \* Attachments of the Skeletal Muscle

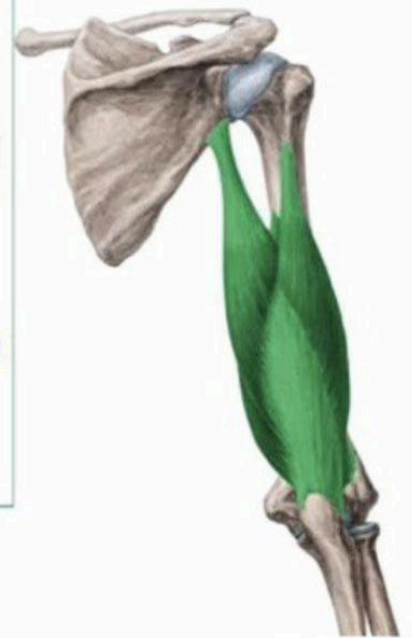
- Each muscle has 2 ends which get attached as follows;

**1. Origin**, is more fixed & less movable and proximal attachment.

**2. Insertion**, is more movable and distal attachment.

- **Origins & insertions are attached mainly to periosteum of bones.**

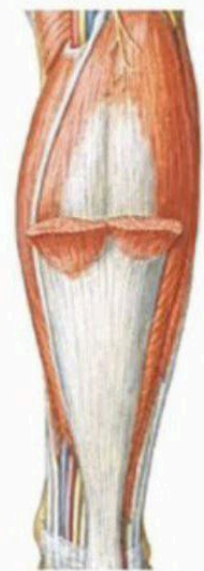
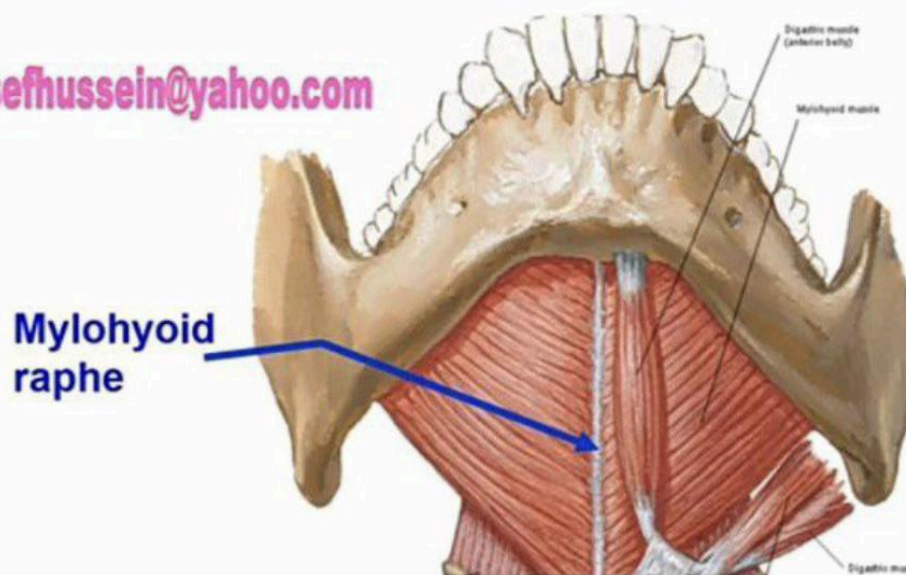
- They attachment by **muscle fleshy fibres**



[dr\\_youssefhusseini@yahoo.com](mailto:dr_youssefhusseini@yahoo.com)

- **Tendon**, cord of dense fibrous connective tissue.
- **Ligament**: Fibrous band of connective tissue
- **Raphe**: Union of symmetrical muscles on each side by a fibrous band or tendinous band .

dr\_youssefhussein@yahoo.com

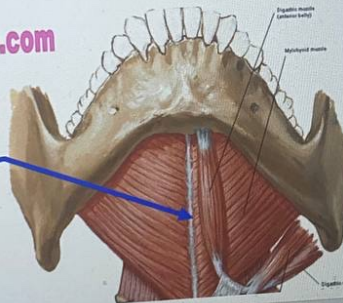


Tendon Achilles

- **Tendon**, cord of fibrous connective tissue that attaches muscle to bone.
- **Ligament**: band of Fibrous connective tissue connects two bones together
- **Raphe**: fibrous tendon between symmetrical muscles on each side.

[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)

Mylohyoid raphe



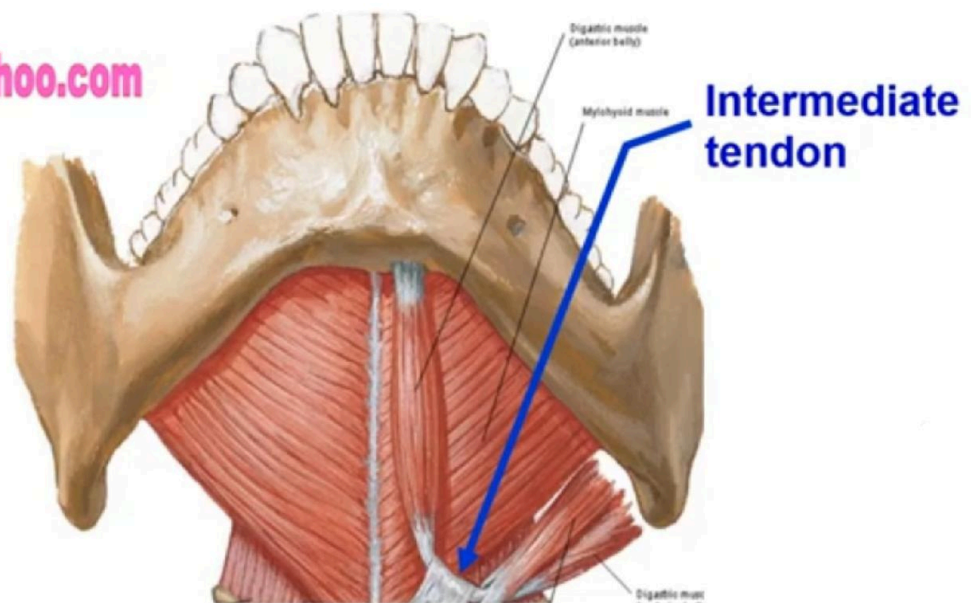
Tendon Achilles

Click to add notes



- **Inter-mediate tendon**, the muscle may have 2 bellies (parts) which are inserted into an intermediate tendon between them e.g. **digastric muscle**.

dr\_youssefhussein@yahoo.com



- **Aponeurosis**

- Flat fibrous tendons at attachment of muscle mainly insertion.

[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)

**Tendon of biceps**

**Bicipital aponeuroses**





- **Retinaculum**
- Thickening of the **deep fascia** that stabilizes tendons and neurovascular structures as they cross a joint.

[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)

Flexor retinaculum



### • Synovial Bursa

- Small fluid-filled flattened **sac** lined by synovial membrane
- It facilitate movement by minimizing friction between a bony joint and the surrounding soft tissue, such as skin, muscles, ligaments.

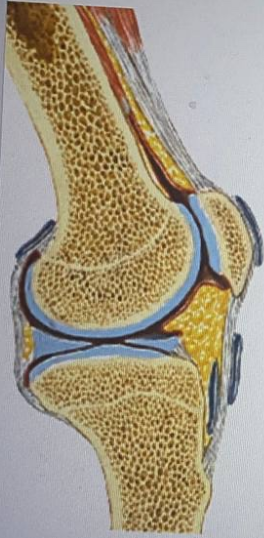


### • Synovial sheath

- Synovial fluid-filled tubular sacs around muscle tendons
- It facilitate movement by reducing friction between tendons and surrounding structures.

**Synovial sheath**





- **Synovial Bursa**
- **Flattened sac** lined by synovial membrane and filled by synovial fluid-filled
- It facilitate movement by minimizing friction between a bony joint and the surrounding soft tissue, such as skin, muscles, ligaments.



Synovial sheath

- **Synovial sheath**
- **Thin synovial membrane** around muscle tendons
- It facilitate movement by reducing friction between tendons and surrounding structures.

[dr\\_youssefhusseini@yahoo.com](mailto:dr_youssefhusseini@yahoo.com)

notes



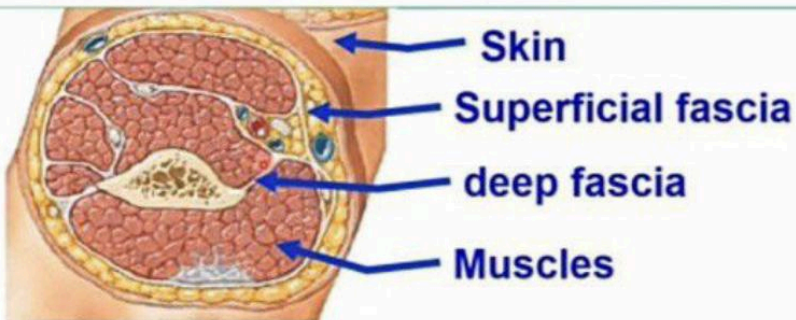
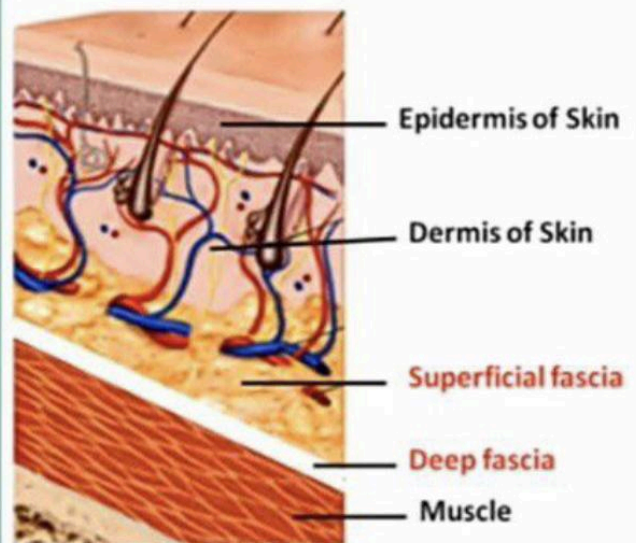


- **Fascia**

- It is a **fibrous sheet** that envelops the body under skin.
- It may be superficial or deep

- **Deep fascia**

- It is a **sheet of fibrous tissue** that
  - 1- Invests the muscle.
  - 2- Provides origin or insertion to the muscle.
  - 3- Forms the retinacula
  - 4- Forms the septa between groups of muscles





[dr\\_youssefhussein@yahoo.com](mailto:dr_youssefhussein@yahoo.com)

