

Chapter 1



Introduction to Human Anatomy

Anatomical Terminology

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Objectives

By the end of this lecture students should:

- **Understand the terms used for describing the structure and function of different regions of gross anatomy.**

Why?

- **Without these terms, it is impossible to describe, in a meaningful way, the composition of the body.**
- **The physician needs these terms so that anatomic abnormalities found on clinical examination of a patient can be accurately recorded.**

Anatomy

➤ The word “**anatomy**” comes from the Greek words: “ana,” = “up,” + “tome,” = “a cutting.”

➤ Anatomy is the science of the structure of the body and its parts & their relations to one another.

➤ **Clinical anatomy** is the study of the macroscopic structure and function of the body as it relates to the practice of medicine and other health sciences.

➤ **Regional Anatomy** is the study of the structure of the body by regions (thorax, abdomen, ...)

➤ **Systemic Anatomy** is the study of the structure of the body by systems (CVS, respiratory S, ...)



Methods of Studying Anatomy

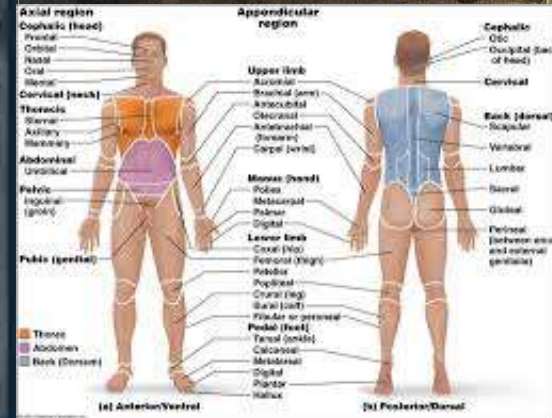
- ① ➤ Dissection. التشریح
- ② ➤ Living (Surface) Anatomy. التشریح السطحي
- ③ ➤ Radiological Anatomy. التشریح الإشعاعي
- ④ ➤ Endoscopy. التنظير الداخلي

dissection

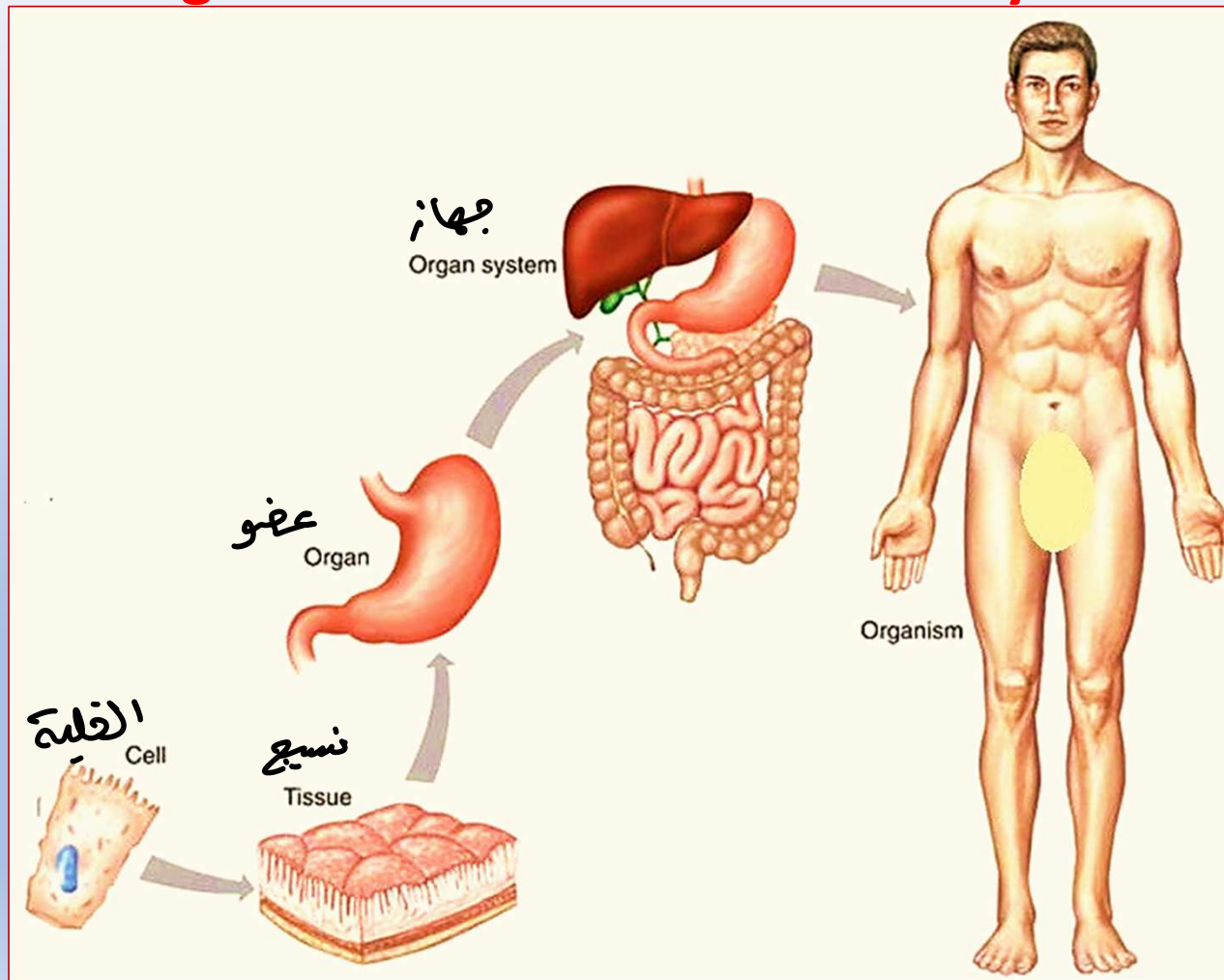
living Anatomy

Radiological Anatomy

endoscopy



Organization of the Human Body



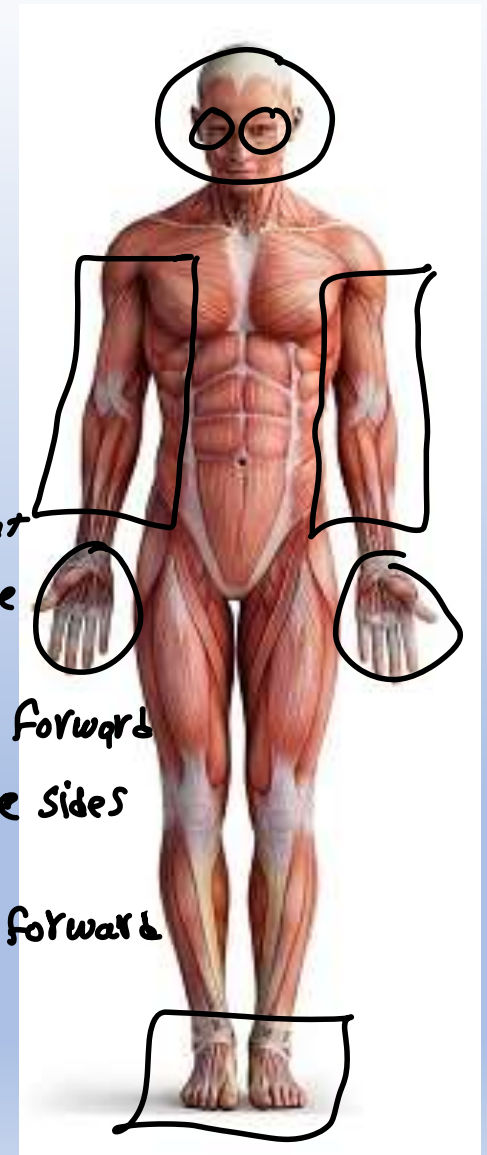
Anatomical Terms

① الموضعية التشريحية Anatomical position:

وضعية قياسية تستخدم نقطة مرجعية عالمية لعلم التشريح
وتسمح بالتواصل الدقيق

❖ It is a standardized posture that serves as a universal reference point for anatomy and physiology & allowing for precise communication.

- The person stands upright (erect).
 - The feet are together and flat on the ground.
 - * ➤ Arms are straight by the sides of the body.
 - Palms are facing forward.
 - Eyes and face are directed forward
- The Person stands upright
 - the feet are flat and on the ground
 - The Palms are facing forward
 - The hands are by the sides of the body
 - eyes and face directed forward



Anatomical Terms

المستويات التشريحية

2 Anatomical planes:

1 Median Sagittal plane:

- ✓ Single vertical plane that divides the body into right & left **equal halves**.

2 Parasagittal (Paramedian) plane:

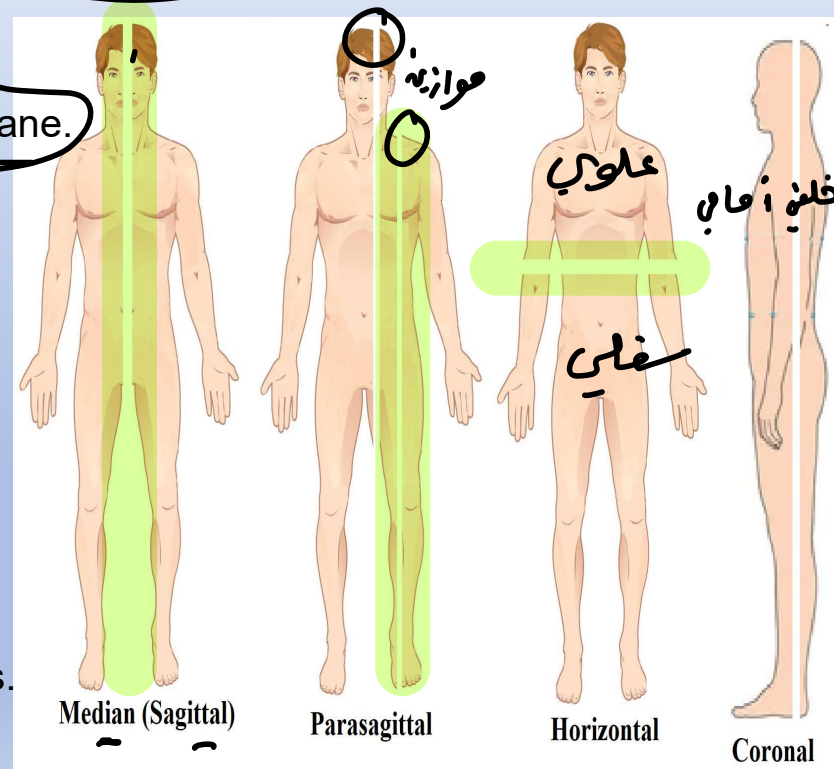
- ✓ Multiple vertical planes which pass parallel to the median plane.
- ✓ Divides body into right & left **unequal parts**.

3 Coronal plane:

- ✓ Multiple vertical planes that pass from side to side.
- ✓ Divides the body into anterior & posterior parts.
- ✓ Perpendicular to the median plane.

4 Transverse plane: Horizontal

- ✓ Multiple planes that divide the body into upper & lower parts.
- ✓ Perpendicular to both median & coronal planes.



Anatomical Terms

□ Terms related to position:

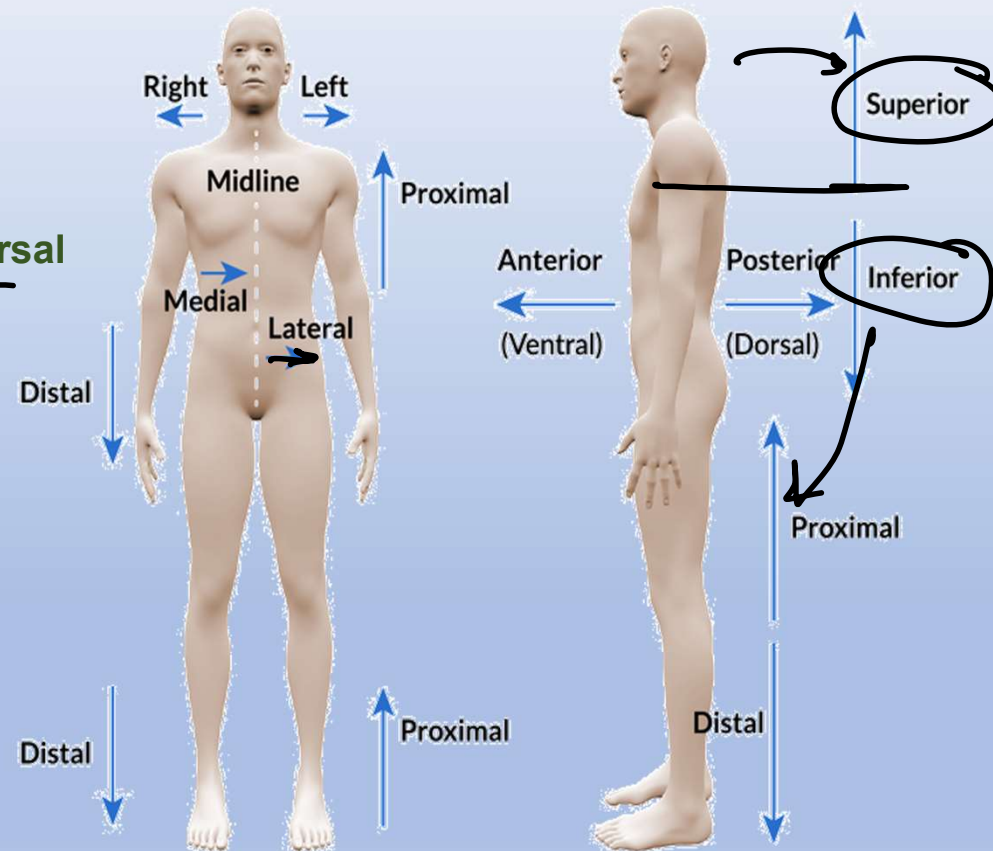
- **Anterior (ventral)**: nearer to the ^{front} front of the body.
- **Posterior (dorsal)**: nearer to the ^{back} back of the body.

* In the hand, **palmar** is used instead of **anterior** & **dorsal** is used instead of **posterior**.

- **Superior (cranial, rostral)**: nearer to the head.
- **Inferior (caudal)**: nearer to the feet.

* In the foot, **Dorsal** is used instead of **Superior** & **Plantar** is used instead of **Inferior**. → في

- **Medial**: nearer to the midline of the body. ^{أقرب إلى الخط الوسطي}
- **Lateral**: away from the midline of the body. ^{أبعد عن الخط الوسطي}



Anatomical Terms

Terms related to position:

قريب من جذع الطرف
الطرف
Proximal: near to the root of the limb.
away from

بعيد عن
جذع الطرف
Distal: away from the root of limb.

أقرب
أقرب إلى السطح
 nearer to the surface

Superficial: nearer to the surface of the body.

away from - - -

أبعد
أبعد عن السطح
Deep: away from the surface of the body.

أقرب إلى مركز الجسم

أقرب
أقرب إلى مركز الجسم/العضو
Internal (Central): nearer to the center of the body/organ.

away from - - -

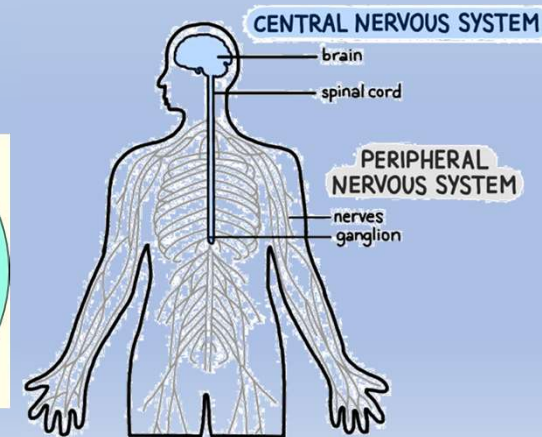
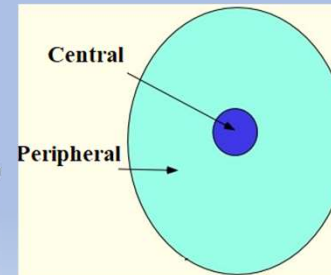
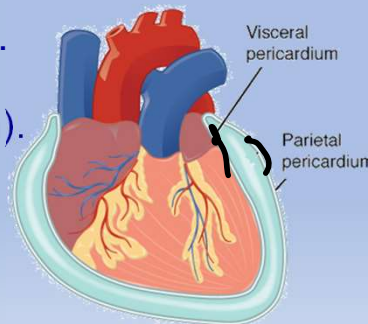
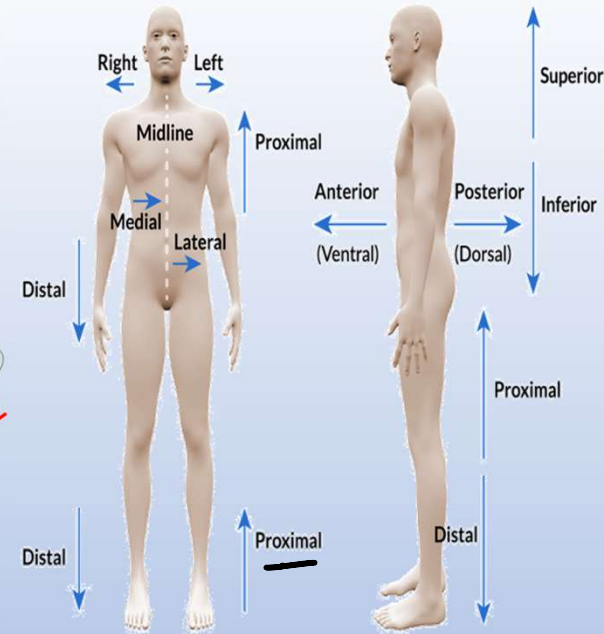
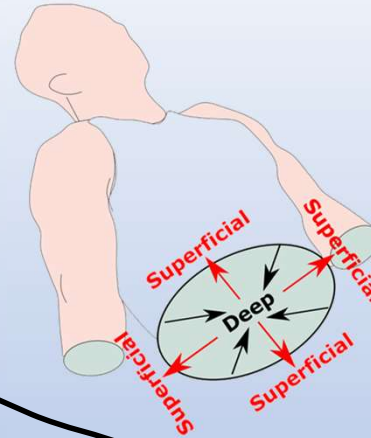
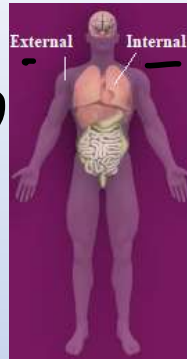
أبعد
أبعد عن مركز الجسم/العضو
External (Peripheral): away from the center of the body/organ.

أقرب إلى العضو

أقرب
أقرب إلى العضو
Visceral: inner (nearer to the organ).

away from - - -

أبعد
أبعد عن العضو
Parietal: outer (away from the organ).

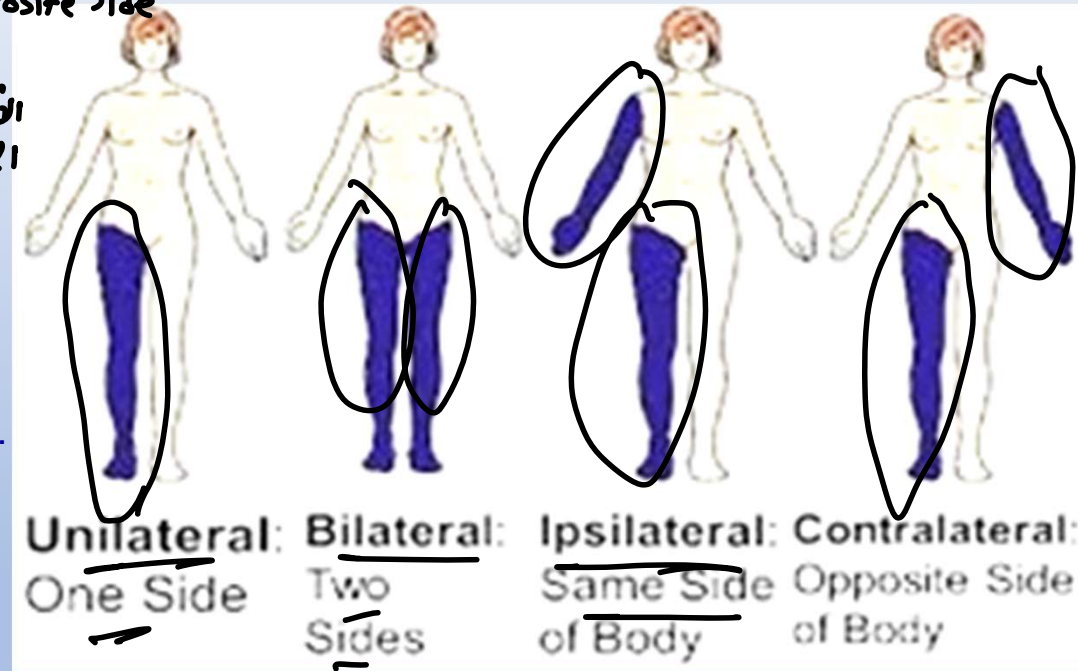


Anatomical Terms

□ Terms related to position: uni → 1 / ipsi → نفسي (same)
 bi → 2 / contra → opposite side

يعني لا يترال Unilateral: at one side of the body.
 يعني لا يترال Bilateral: at both sides of the body. } اني نفسا
 الحشابه

اي نفسا Ipsilateral: at the same side of the body.
 الاختلاف Contralateral: at the opposite side of the body.
 تونترا لا يترال

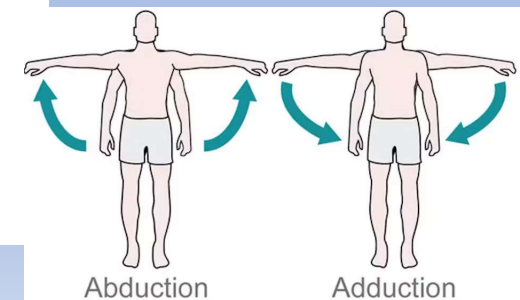
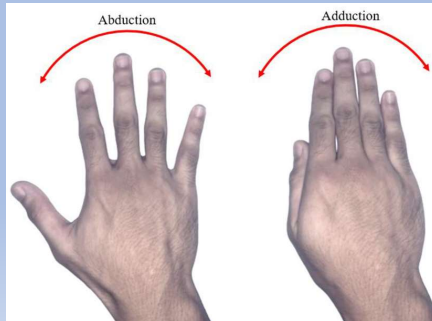
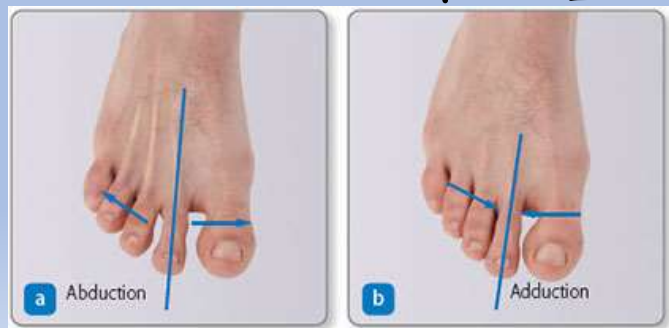
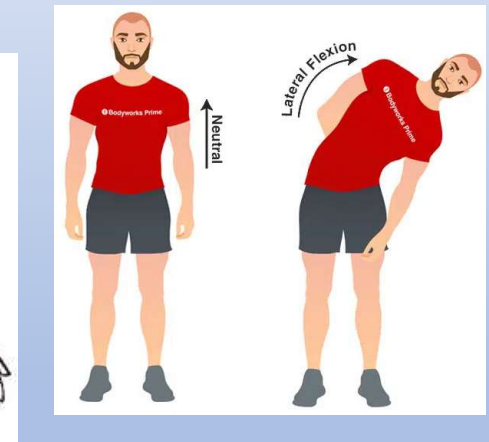
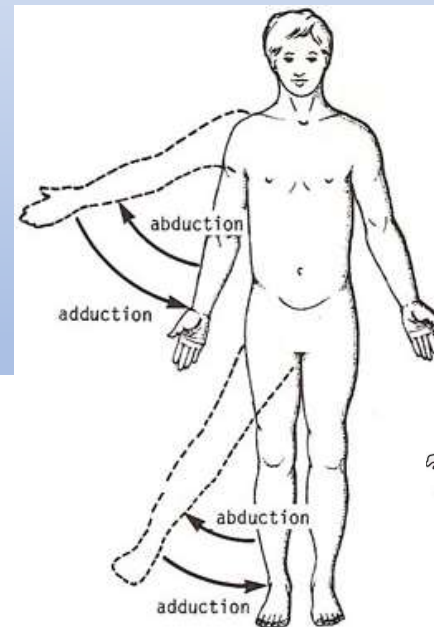
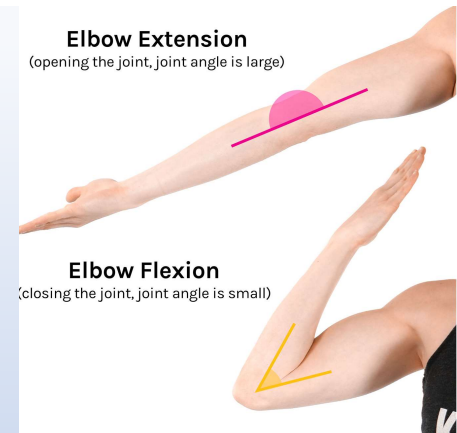
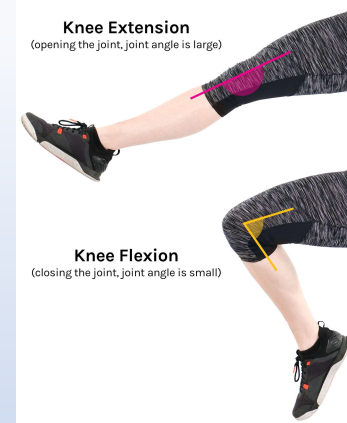


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Anatomical Terms

□ Terms related to movements:

- **Flexion:** bending / approximation / decreasing the angle.
- **Extension:** straightening / increasing the angle.
- **Lateral flexion:** moving the trunk in coronal plane movement away the median plane.
- **Abduction:** movement away the median plane.
- **Adduction:** towards movement towards the median plane.
- **Abduction in fingers & toes:** spreading or fanning.
- **Adduction in fingers & toes:** drawing together.



Anatomical Terms

□ Terms related to movements:

بالإشارة إلى الخط الأوسط
Medial Rotation: movement of the anterior surface towards the midline.

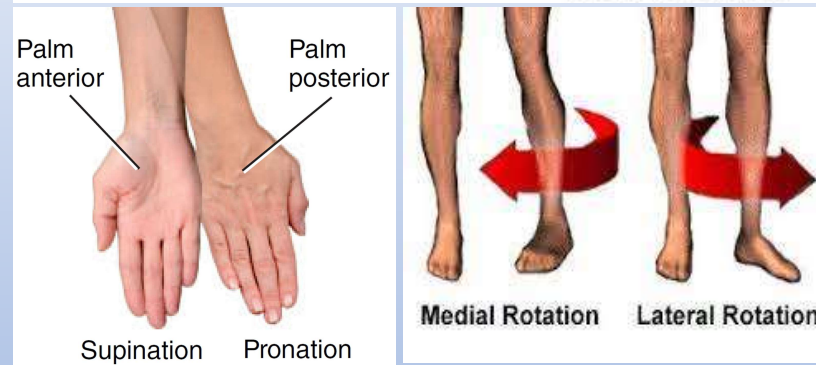
عكس الإشارة إلى الخط الأوسط
Lateral Rotation: movement of the anterior surface away from the midline.

➤ **Supination** (Lateral rotation of forearm): rotation of the forearm so, the palm faces forwards.

➤ **Pronation** (Medial rotation of forearm): rotation of the forearm so, the palm faces backwards.

* ➤ **Inversion**: rotation of the foot so, the sole is directed inwards.

➤ **Eversion**: rotation of the foot so, the sole is directed outwards.



(b) Inversion



(c) Eversion

Anatomical Terms

□ Terms related to movements:

➤ **Elevation:** moving up.

➤ **Depression:** moving down.

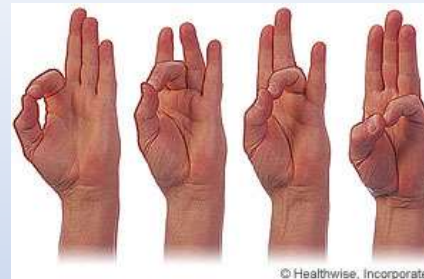
✱ **Opposition:** movement that brings the tip of the thumb
opposite the other fingers.

الحركة للأمام ➤ **Protraction:** moving forwards.

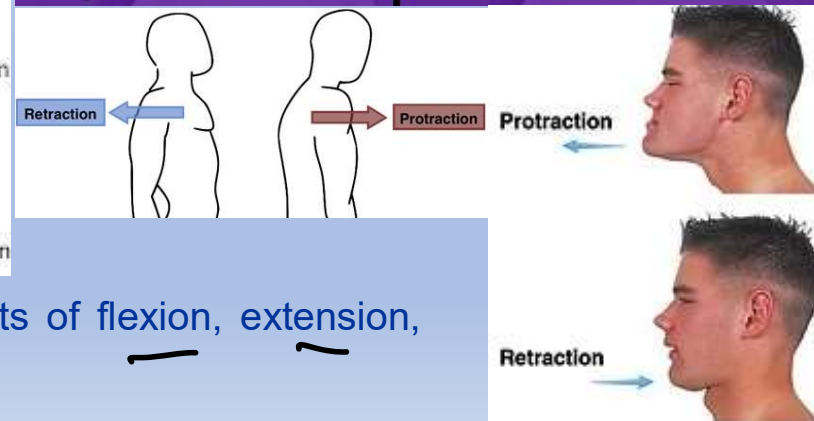
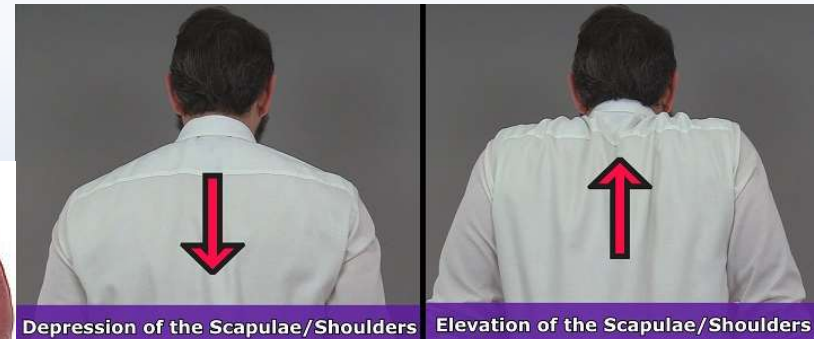
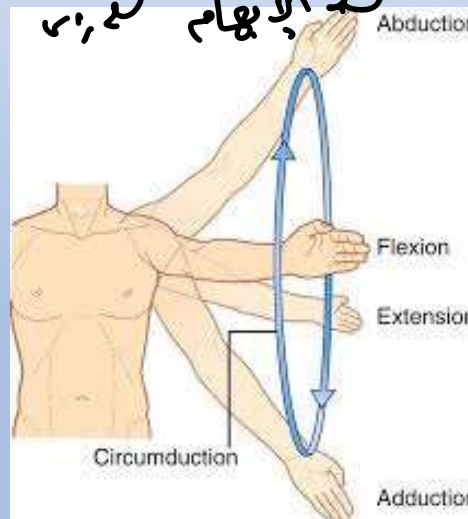
الحركة للخلف ➤ **Retraction:** moving backwards.

الحركة الدائرية ➤ **Circumduction:** combination in sequence of the movements of flexion, extension, abduction, and adduction.

متتابع



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References

- Richard S. Snell, Clinical Anatomy by Regions, 9th ed., 2012. Lippincott Williams & Wilkins, Pages 28-32.

Study Hard



Thank

You!

رَبَّنَا اغْفِرْ لِي وَلِوَالِدِي
وَالْمُؤْمِنِينَ يَوْمَ يَقُومُ
الْحِسَابُ

