



كلية المستقبل الجامعة
قسم تقنيات التخدير



المرحلة الاولى ٢٠٢٢-٢٠٢٣

ANATOMY

LECTURE :1. ANATOMICAL TERMS

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Lectures in Anatomy for Anesthesia Technician

Anatomic Terms

Definition of Anatomy. **Anatomy may be defined as the science of the structure and function of the body.**

The term (anatomy) consists of two parts; **ana**, which means away and **tomy** which means to cut, so it means to cut away or dissect.

- **Descriptive Anatomic Terms:**
- It is important for medical personnel to have a sound knowledge and understanding of the basic anatomic terms. Without anatomic terms, one cannot accurately discuss or record the abnormal position of organs, or the exact location of swellings or tumors.

Terms of position

Terms Related to Position

All descriptions of the human body are based on the assumption that the person is **standing erect, with the upper limbs by the sides and the face and palms of the hands directed forward**. This is the so-called **anatomic position**. (figure 1 and 2)

The various parts of the body are then described in relation to certain imaginary planes. These are;

Median Sagittal Plane, coronal and transverse(figure 3).

The median plan is a vertical plane passing through the center of the body, dividing it into equal right and left halves

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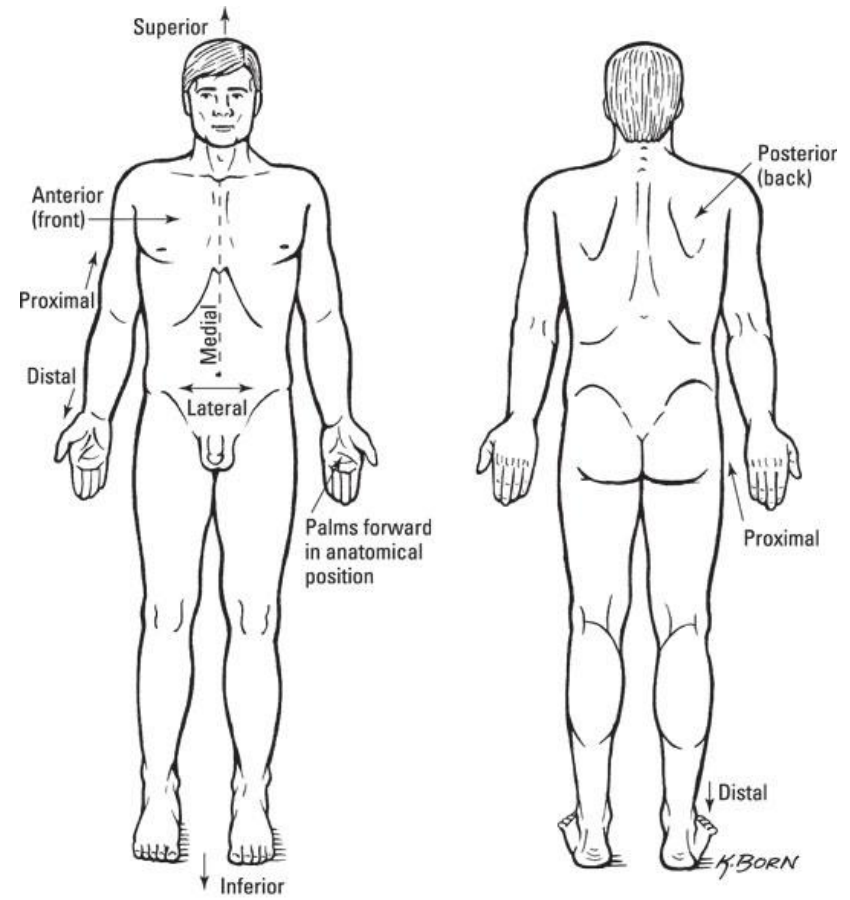


Figure .1

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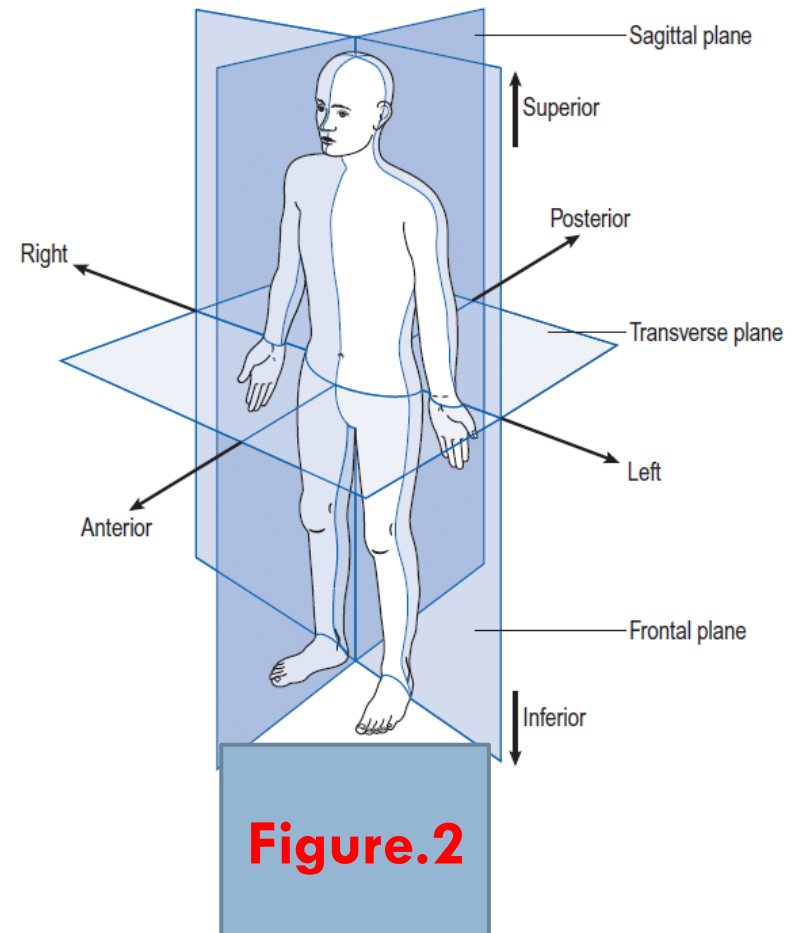


Figure.2

Planes situated to one or the other side of the median plane and parallel to it are termed **paramedian**.

A structure situated nearer to the median plane of the body than another is said to be **medial** to the other. Similarly, a structure that lies farther away from the median plane than another is said to be **lateral** to the other (**figure 3**).

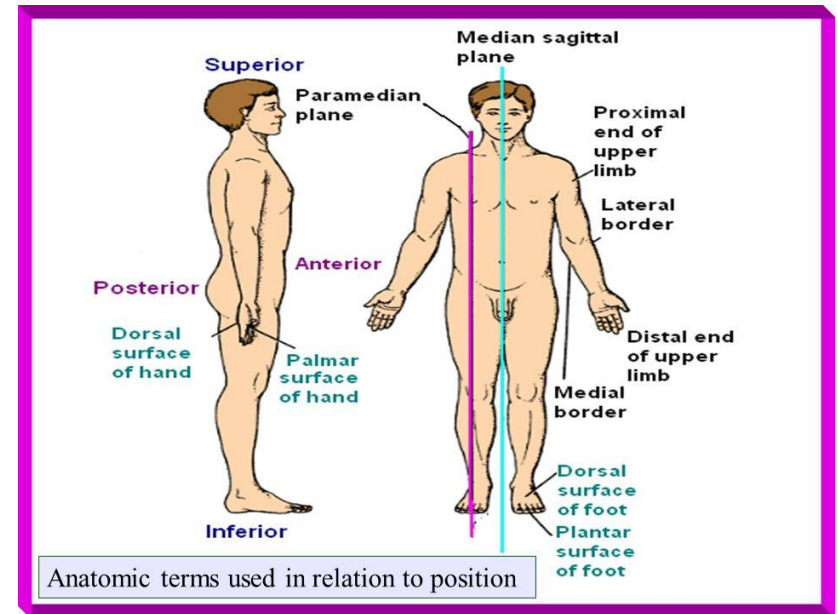


Figure 3

Coronal Planes (figure. 4).

These planes are imaginary vertical planes at right angles to the median plane.

Horizontal, or Transverse, Planes (figure 5).

These planes are at right angles to both the median and the coronal planes

Anterior and Posterior are used to indicate the **front** and **back** of the body, respectively. To describe the relationship of two structures, one is said to be anterior or posterior to the other insofar as it is **closer to the anterior or posterior body surface (figure 6).**

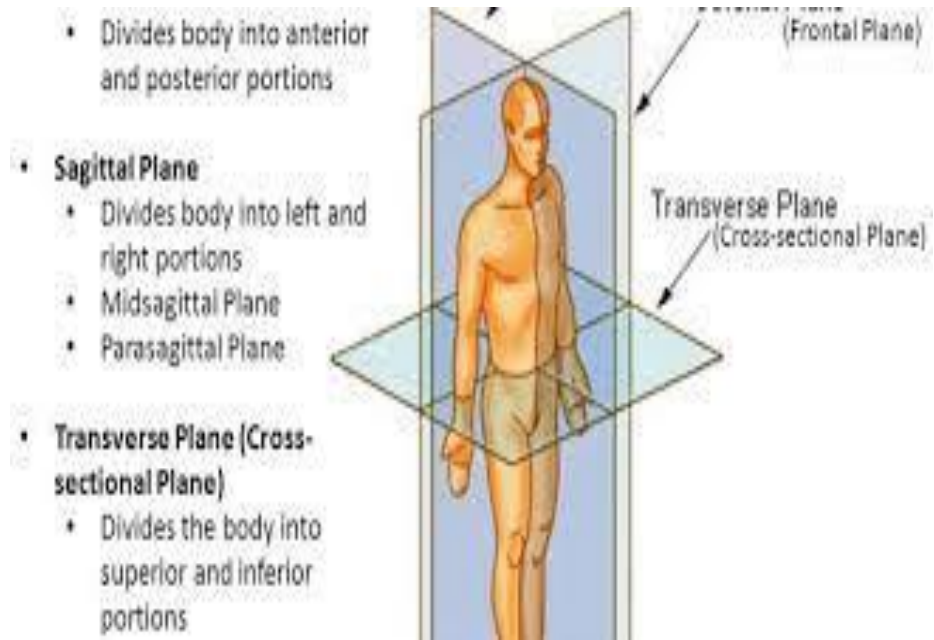


Figure.4

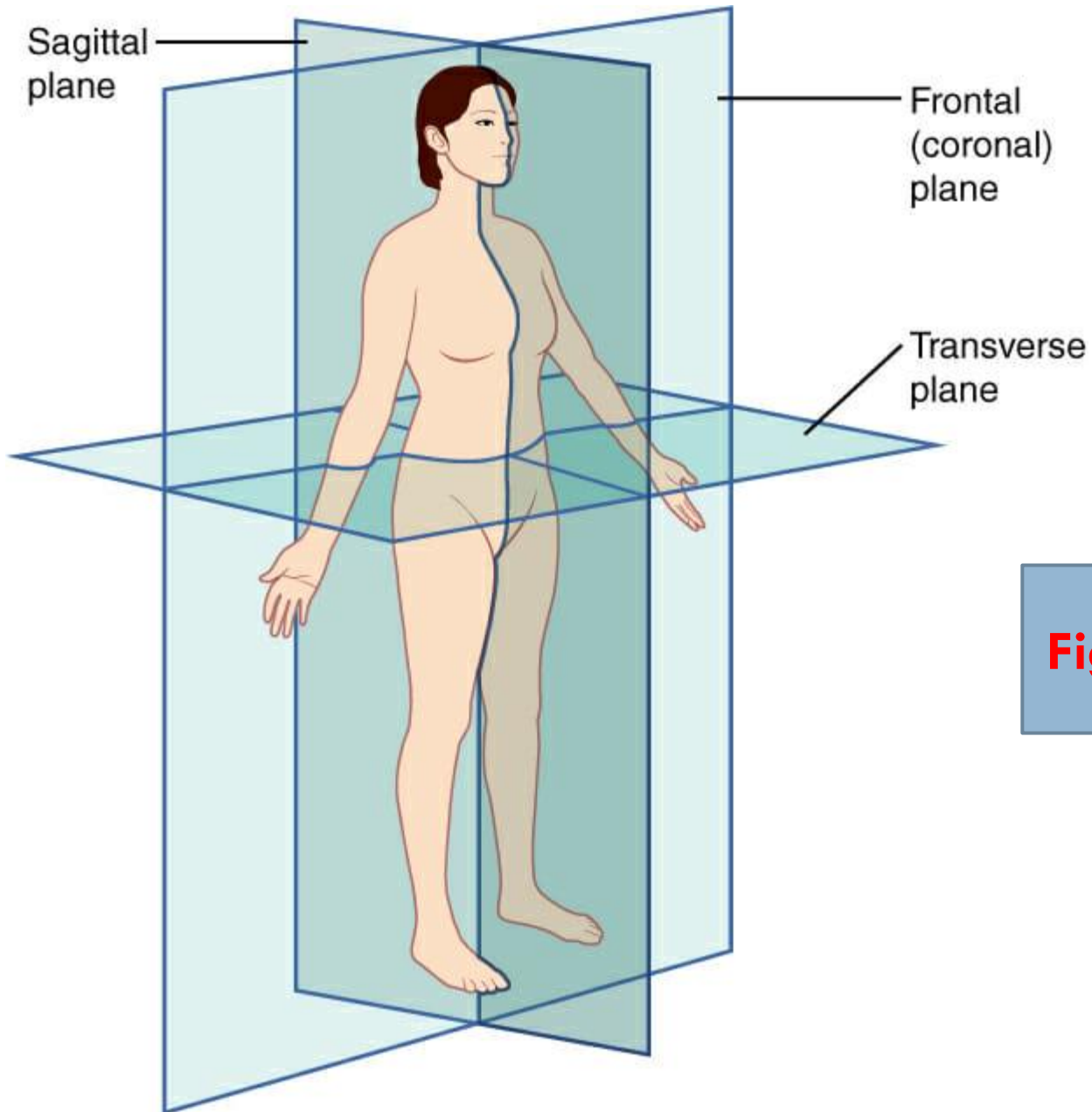


Figure 5

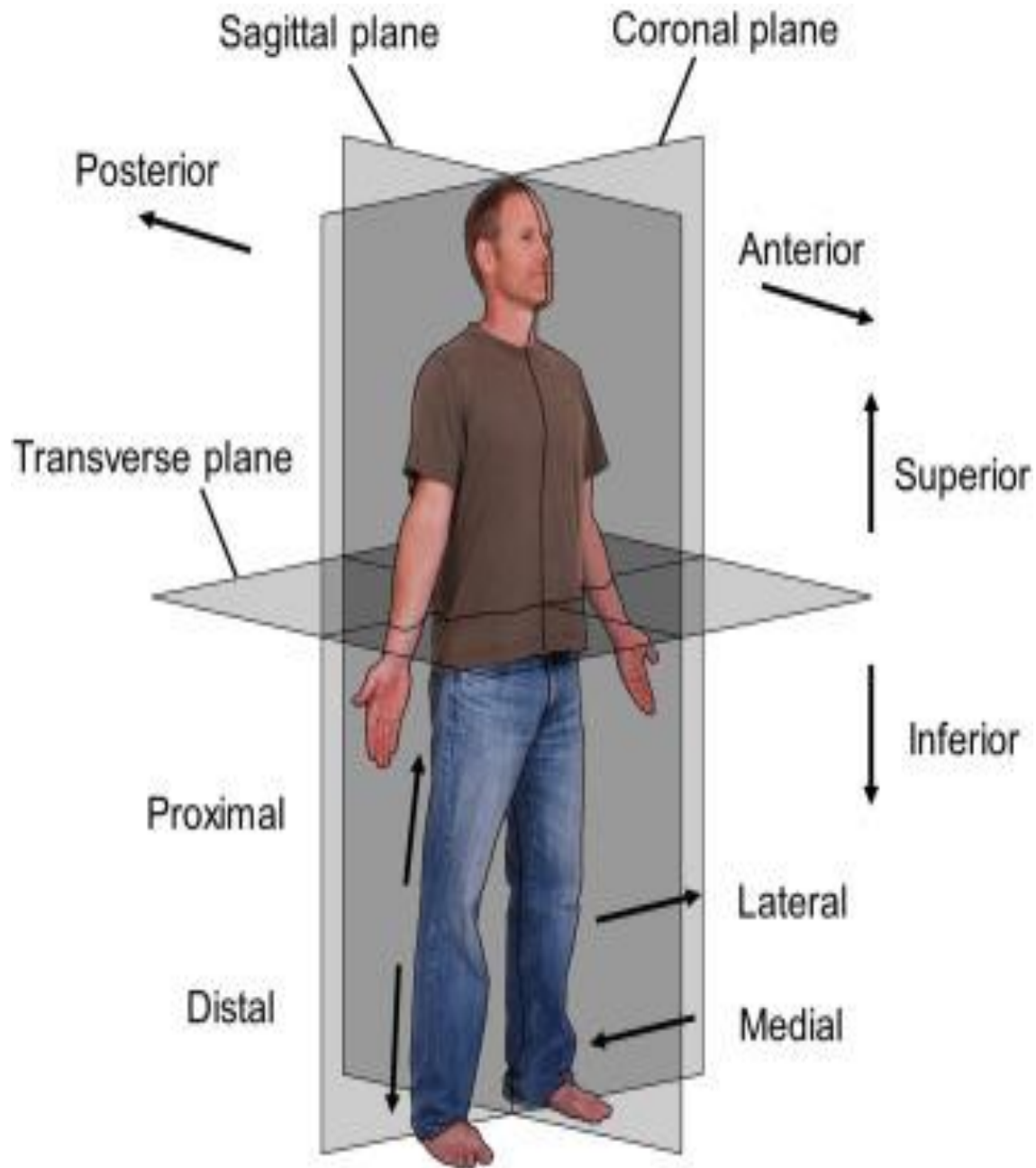


Figure 6

Terms of position

In describing the hand, the terms **palmar and dorsal surfaces** are used in place of anterior and posterior, and in describing the foot, the terms **plantar and dorsal surfaces** are used instead of lower and upper surfaces (figure 6).

The terms **proximal and distal** describe the relative distances from the roots of the limbs; for example, **the arm is proximal** to the forearm and the hand is **distal** to the forearm.

Terms of position

The terms **superficial and deep** are used to the relative distances of structures from the surface of the body, and the terms **superior and inferior** denote levels relatively high or low with reference to the upper and lower ends of the body.

The terms **internal and external** are used to describe the relative distance of a structure from the center of an organ or cavity.

Terms of position

for example, the **internal carotid** artery is found inside the **cranial cavity** and the **external carotid artery** is found outside the cranial cavity.

The term **ipsilateral** refers to the same side of the body; for example, **the left hand and the left foot are ipsilateral.**

Contralateral refers to opposite sides of the body; for example, the left **biceps brachii** muscle and the right **rectus femoris** muscle are contralateral.

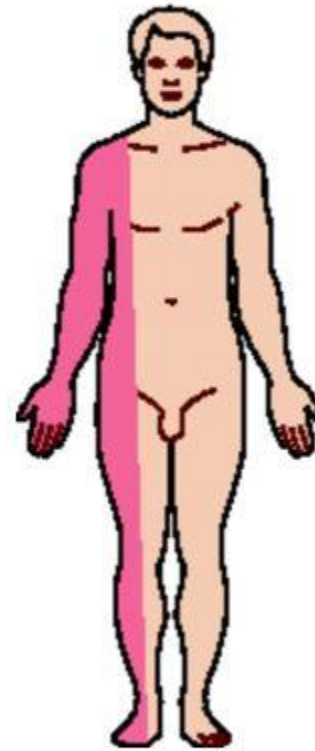
The **supine** position of the body is lying on the back.

The **prone** position is lying face downward

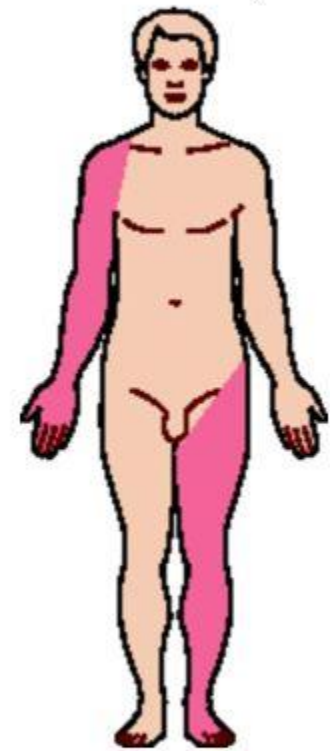
Positional and Directional Terms (cont'd)



- Ipsilateral (ipsi-)
- Contralateral (contra-)



Ipsilateral



Contralateral

Figure. 6

Terms of movement

Movements usually occurs at joint, a site where two or more bones come together. Some joints have **no movement** (e.g. **sutures of the skull**), some have only **slight movement** (e.g. superior **tibiofibular joint**), and some are **freely movable** (e.g. **shoulder joint**).
(Figure 8).

Flexion is a movement that takes place in a sagittal plane. For example, flexion of the elbow joint approximates the anterior surface of the forearm to the anterior surface of the arm..

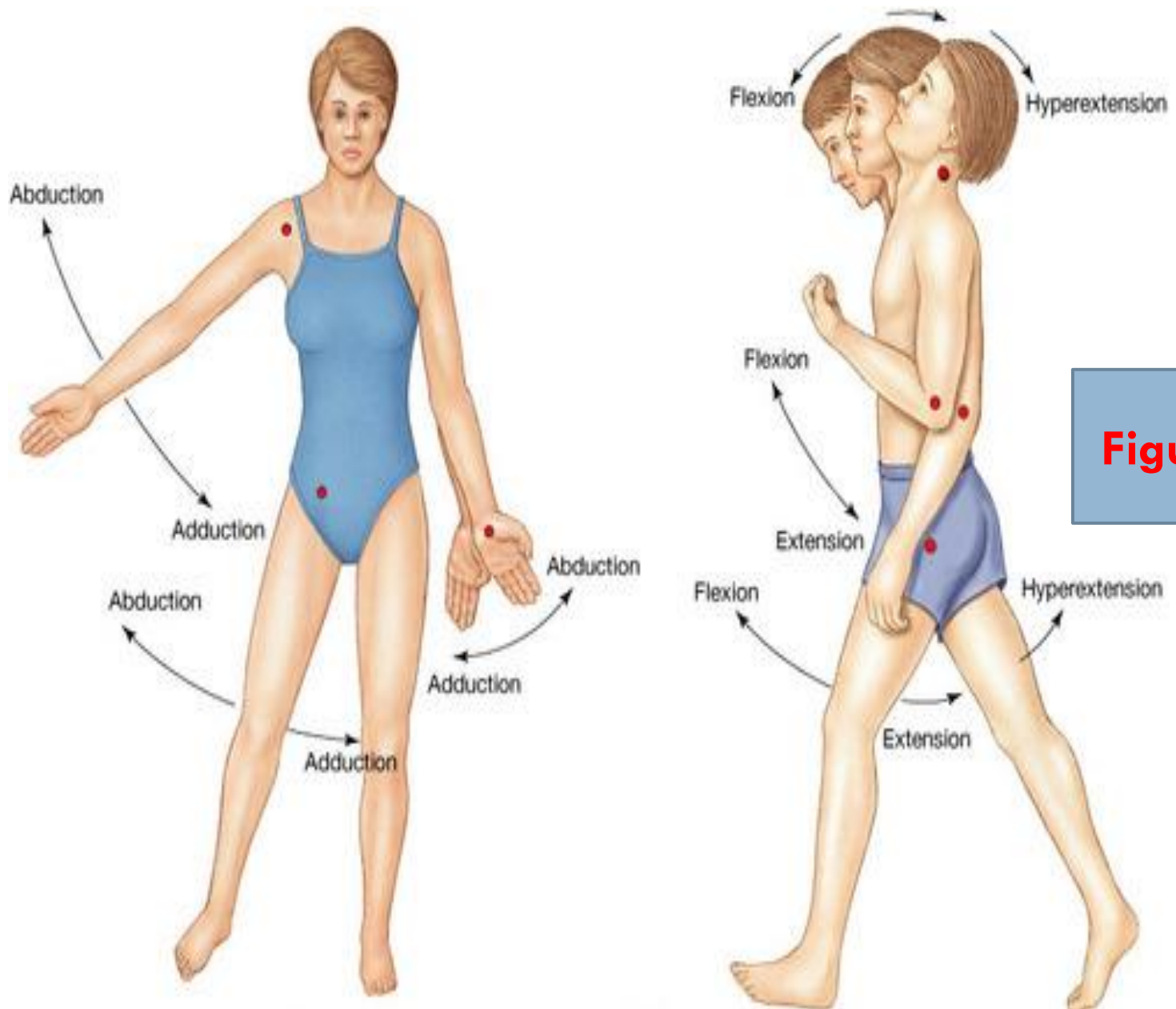


Figure 7

Terms of movement

Abduction is a movement of a limb away from the midline of the body in the coronal plane .

Adduction is a movement of a limb toward the body in the coronal plane . In the **fingers and toes**, abduction is applied to the spreading of these structures and adduction is applied to the drawing together of these structures.

Extension means straightening the joint and usually takes place in a posterior direction.(**figure 8**)

Lateral flexion is a movement of the trunk in the coronal Plane.

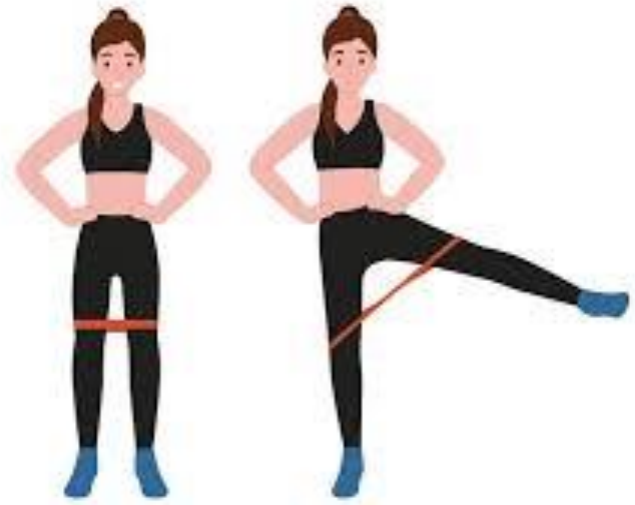
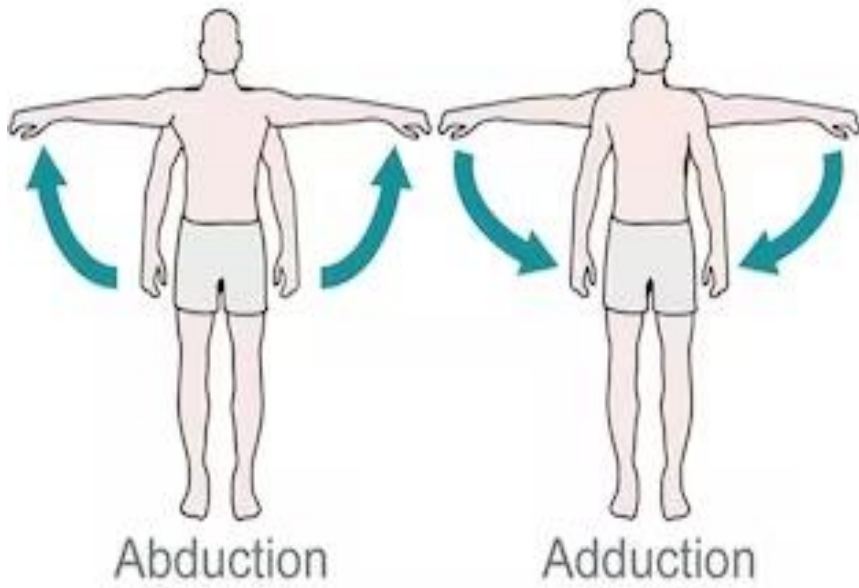


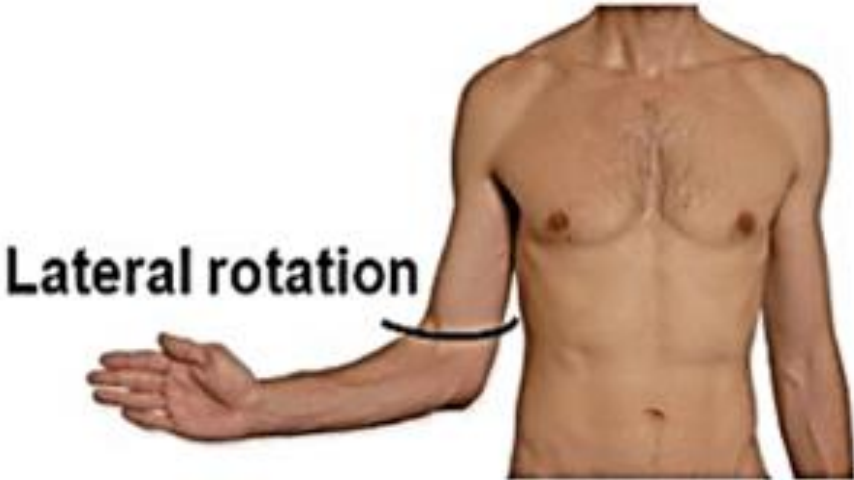
Figure.8

Terms of movement

Rotation is the term applied to the movement of a part of the body around its long axis. **Medial rotation** is the movement that results in the anterior surface of the part facing medially. **Lateral rotation** is the movement that results in the anterior surface of the part facing laterally in such a manner that the palm of the hand faces posteriorly. **(figure 9 a, b)**

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Figure 9a



Medial rotation

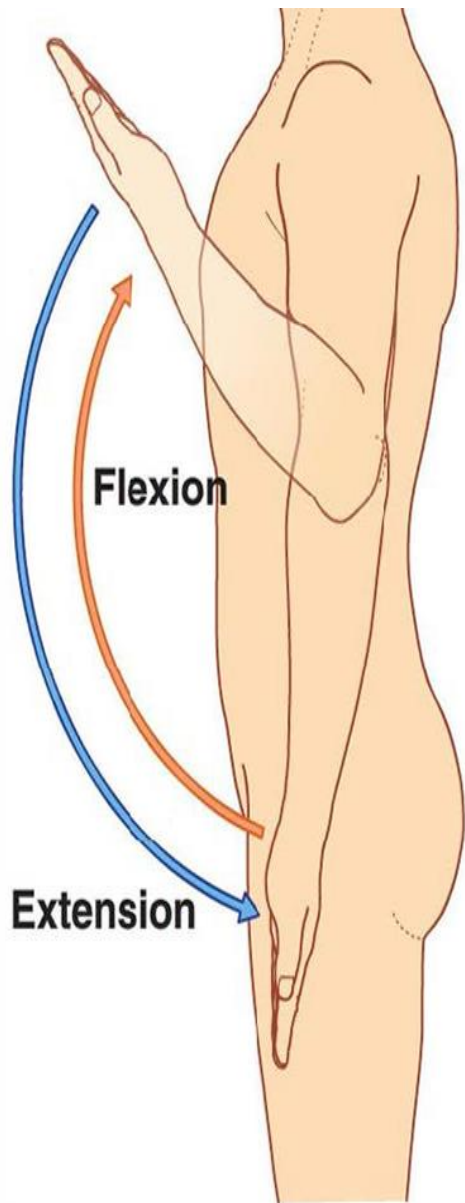
Terms of movement

Pronation of the forearm is a medial rotation of the forearm in such a manner that the palm of the hand faces posteriorly.

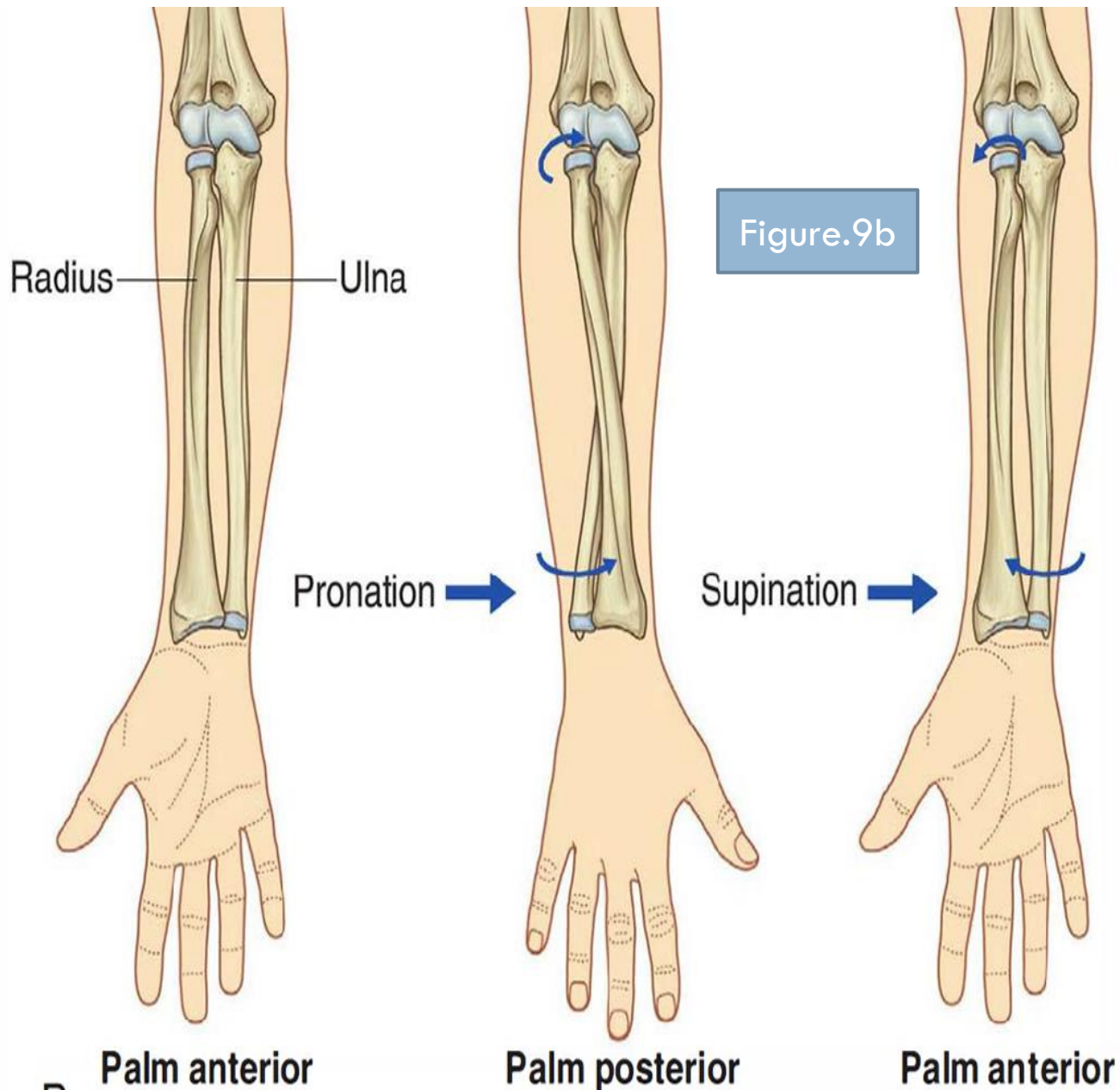
Supination of the forearm is a lateral rotation of the forearm from the pronated position so that the palm of the hand comes to face anteriorly (**figure 9**).

Inversion is the movement of the foot so that the sole faces in a medial direction .

Eversion is the opposite movement of the foot so that the sole faces in a lateral direction.



A



B

Palm anterior

Palm posterior

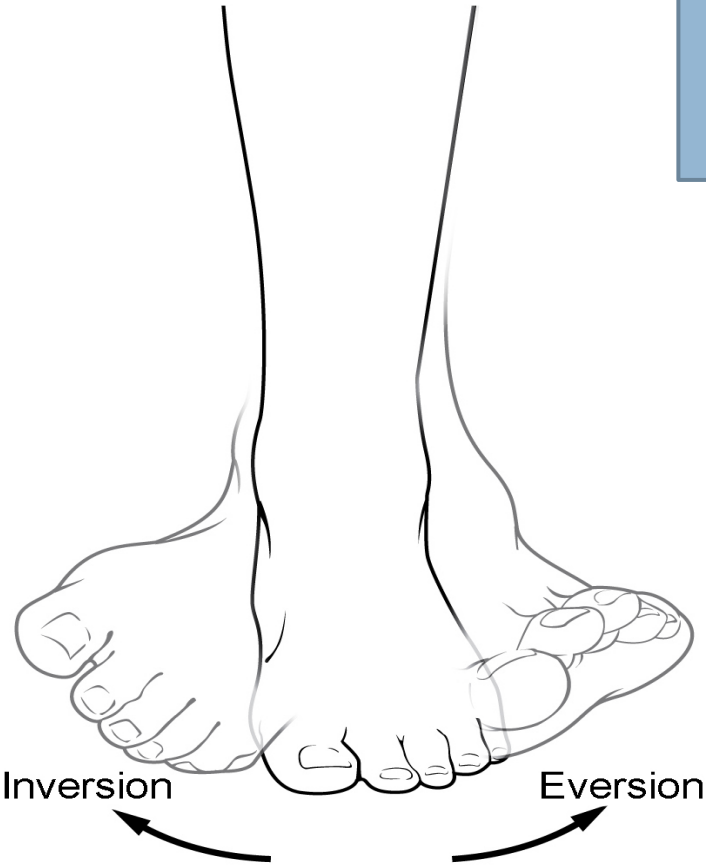
Palm anterior

Terms of movement

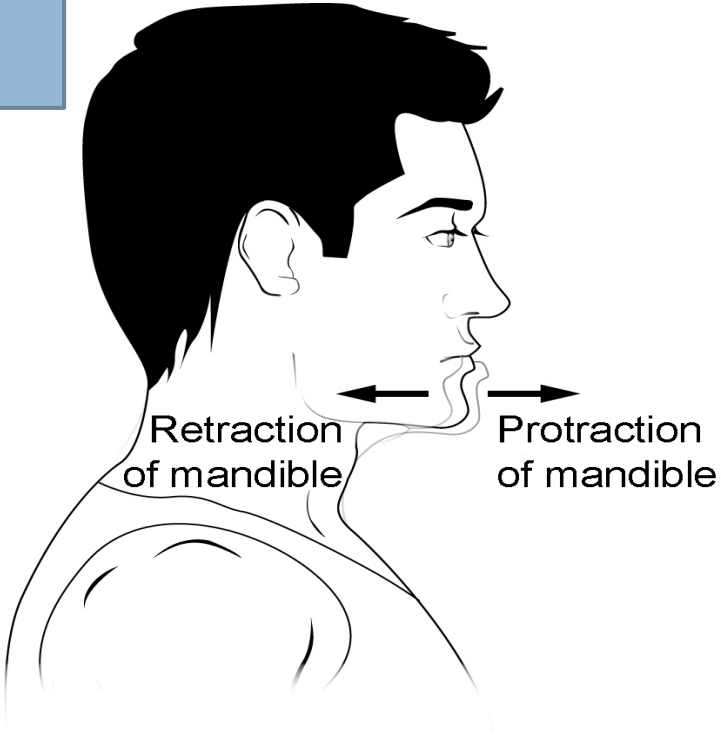
(figure 10).

Protraction is to move forward; **retraction** is to move backward (used to describe the forward and backward movement of the jaw at the temporomandibular joints).

**Figure
10**



(a) Inversion and eversion



(b) Protraction and retraction