



**DEPARTMENT OF ANESTHESIA TECHNIQUES
AL-MUSTAQBAL UNIVERSITY COLLEGE**

**First Stage
(Lecture 1)**

Introduction to anatomy and anatomical term

By

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The objectives of this lecture:-

At the end of the lecture, you should be able to:-

- 1- Identify what is anatomy?
- 2-Describe major anatomical terms



Introduction to anatomy:-

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.

Anatomical Terms:-

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. See Figure(1.1)

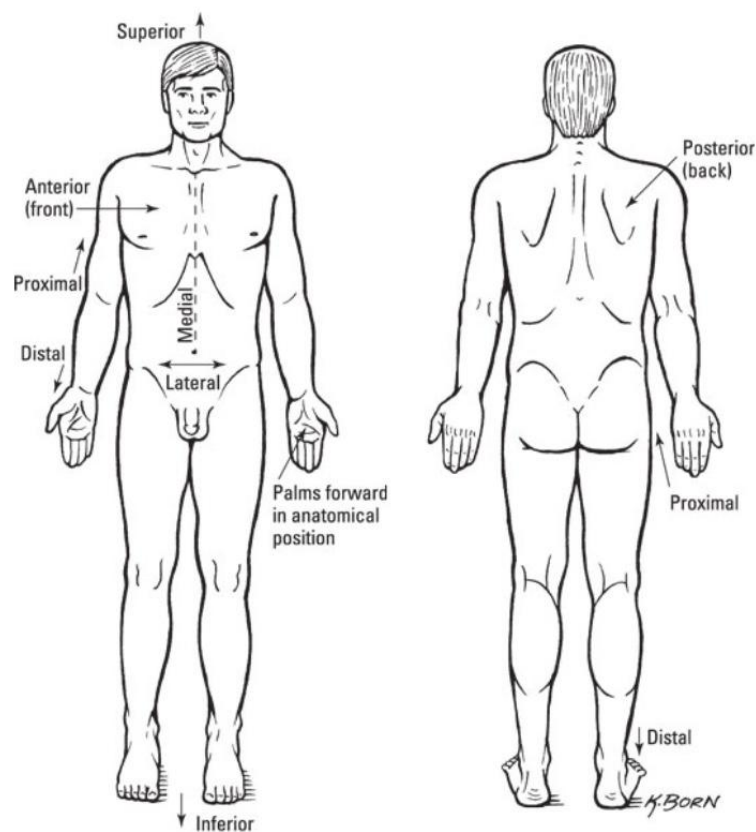


FIGURE 1.1 Note that the subjects are standing in the anatomic position.



*The various parts of the body are then described in relation to certain imaginary planes:-

•••**Median Sagittal Plane**:-

This is a vertical plane passing through the center of the body, dividing it into equal right and left halves. Figure(1.2) and Figure (1.3)

•**Paramedian Plane** :-situated to one or the other side of the median plane and parallel to it.

•**Medial**:- structure situated nearer to the median plane of the body than another is said to be medial to the other(Fig1.4) . Similarly,

•**Lateral**:- a structure that lies farther away from the median plane than another is said to be lateral to the other(Fig1.4) .

•••**Coronal Planes**:-

These planes are imaginary vertical planes at right angles to the median plane. (Fig1.2)and (Fig1.3)

•••**Horizontal, or Transverse Planes**

These planes are at right angles to both the median and the coronal planes.(Fig1.2)and (Fig1.3)

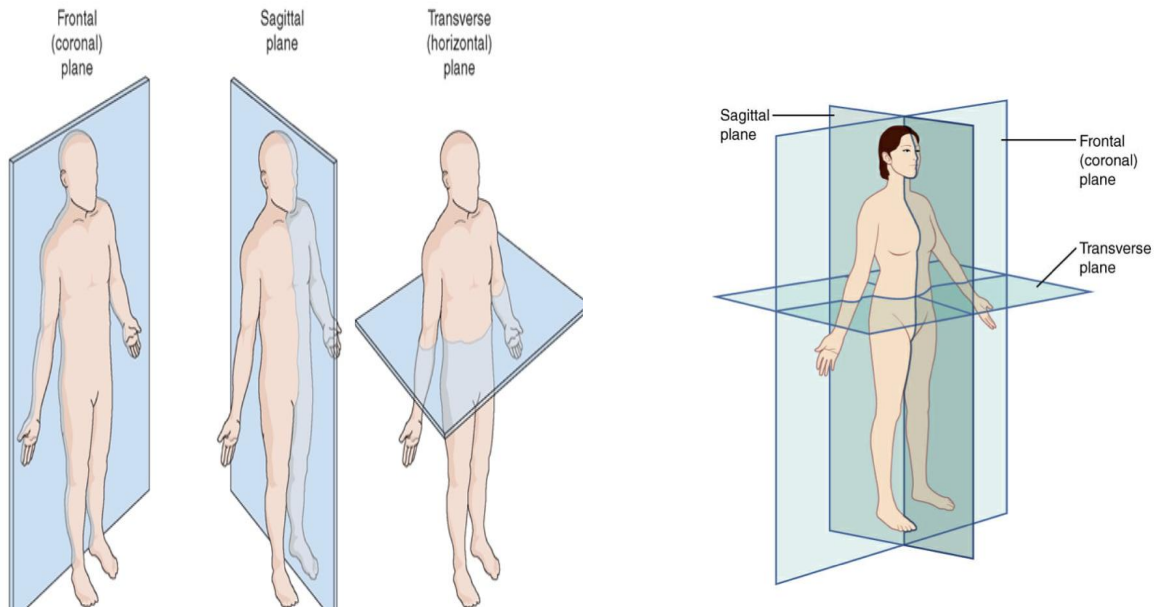


FIGURE 1.2 Body Planes

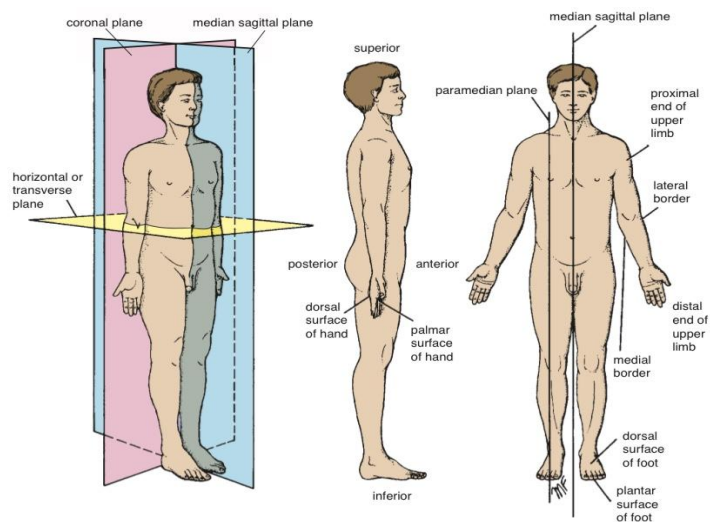
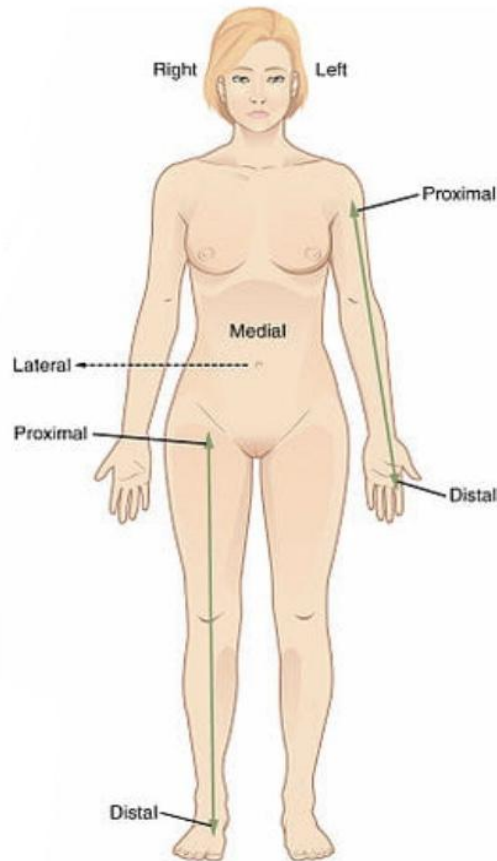


FIGURE 1.3 Body Planes ,Anatomic terms used in relation to position. Note that the subjects are stanin



the position

FIGURE 1.4

Anatomic terms used in relation to position.

***The terms **anterior(ventral)**:- are used to indicate the front of the body. (Fig1.5)

***The terms **posterior(dorsal)**:- are used to indicate the back of the body. (Fig1.5)

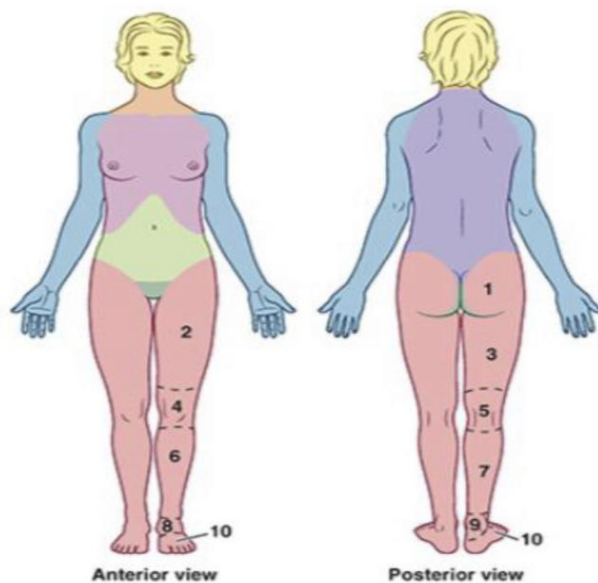
The terms Anterior and posterior ,To describe the relationship of two structures, one is said to be anterior



or posterior to the other insofar as it is closer to the anterior or posterior body surface.

*** In describing the hand, the terms **palmar and dorsal surfaces** are used in place of anterior and posterior, (Fig1.6)

*** and in describing the foot, the terms **plantar and dorsal** surfaces are used instead of lower and upper surfaces. (Fig1.6)



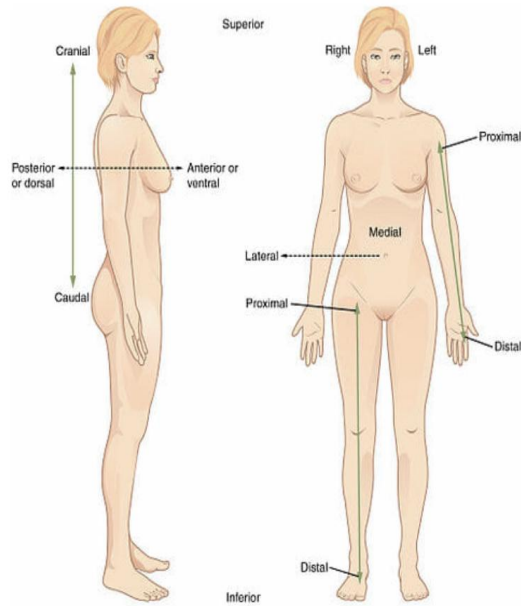


FIGURE 1.5 Anterior and Posterior view

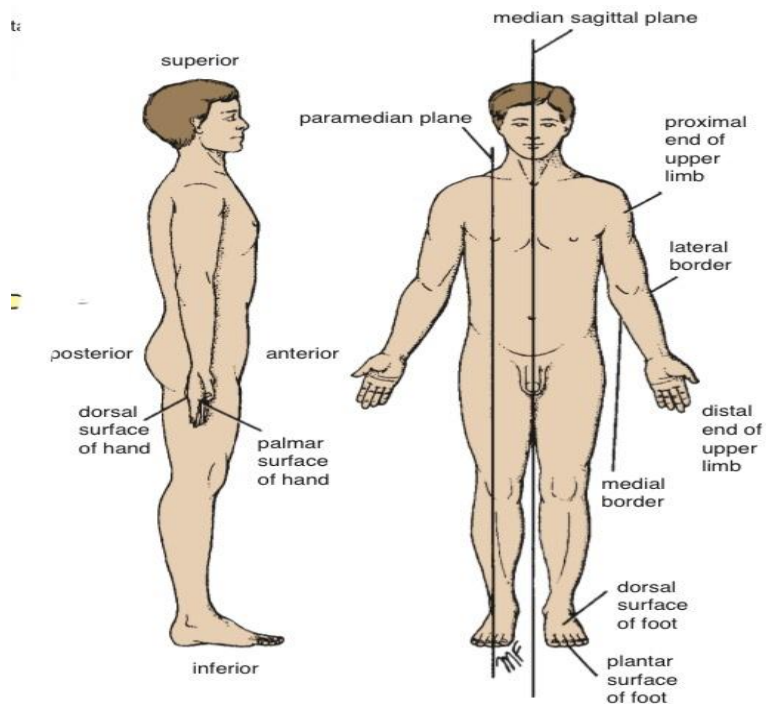


FIGURE 1.6 palmar and dorsal surfaces of hand & plantar and dorsal surfaces of foot .

***the terms **superior and inferior** denote levels relatively high or low with reference to the upper and lower ends of the body.(Fig1.7)

***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. (Fig1.7)

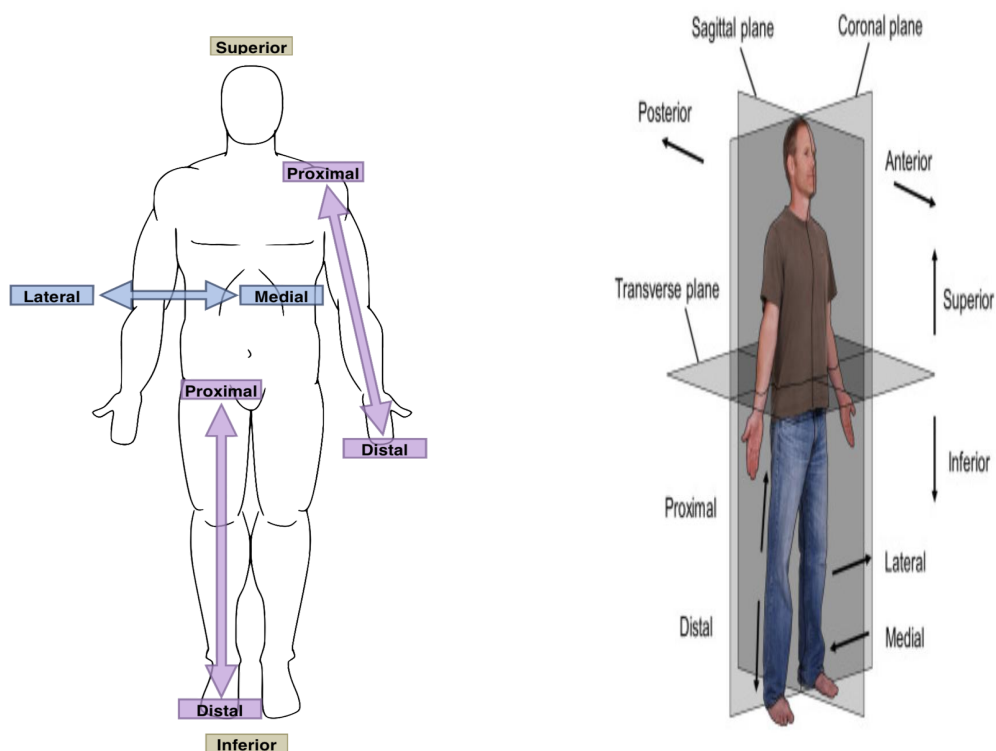


FIGURE 1.7

***The terms **superficial and deep** denote the relative distances of structures from the surface 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;

•**Internal**:-means inside or closer to the center.



• **External**:-mean outside of or farther from the center of organ.

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.(Fig1.8)

***The **prone position** is lying face downward.(Fig1.8)



Supine (On back)



Prone (On front)



FIGURE 1.8 Supine and Prone position

***Terms of movement

A site where two or more bones come together is known as a joint. 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).



*****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 (Fig1.9), It is usually an anterior movement, but it is occasionally posterior, as in the case of the knee joint(Fig1.9).

*****Extension** means straightening the joint and usually takes place in a posterior direction.(Fig1.9)

*****Lateral flexion** is a movement of the trunk in the coronal plane Fig(1.9)

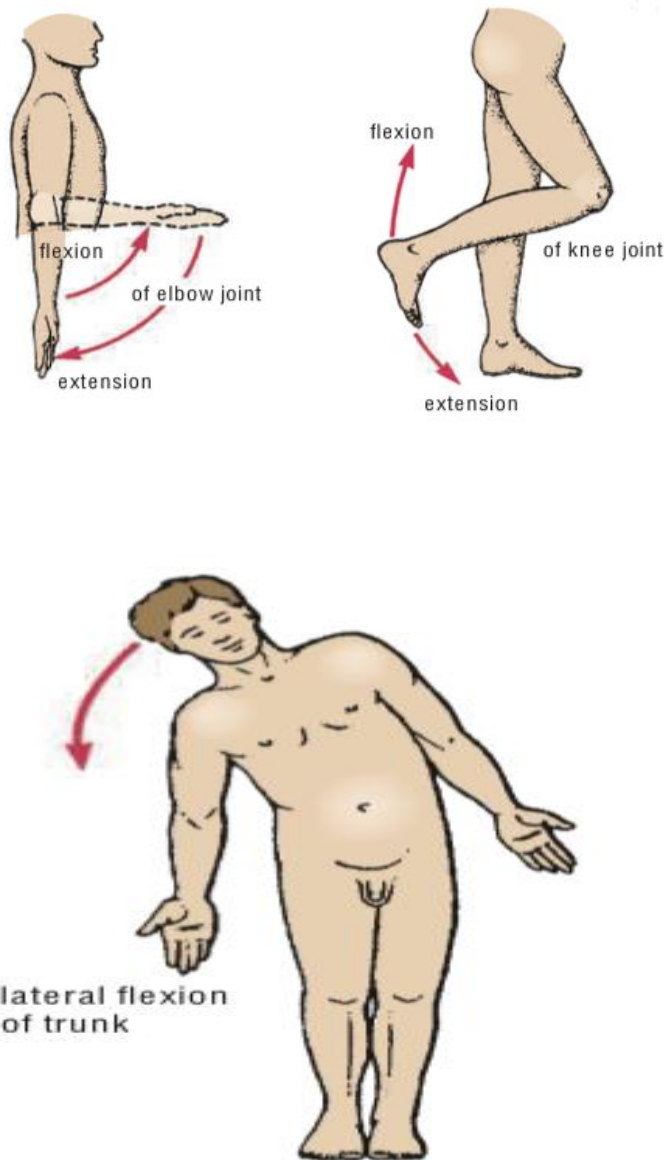


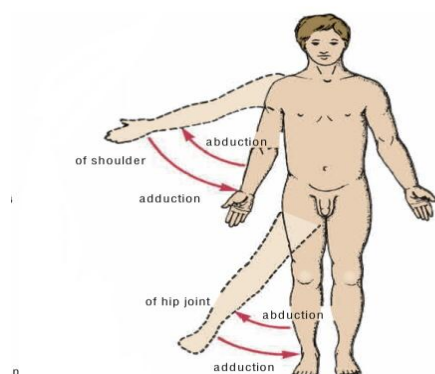
FIGURE 1.9 Some anatomic terms used in relation to movement. Note the difference between flexion of the elbow and that of the knee.



*** **Abduction** is a movement of a limb away from the midline of the body in the coronal plane .(Fig1.10)

*** **Adduction** is a movement of a limb toward the body in the coronal plane . (Fig1.10)

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



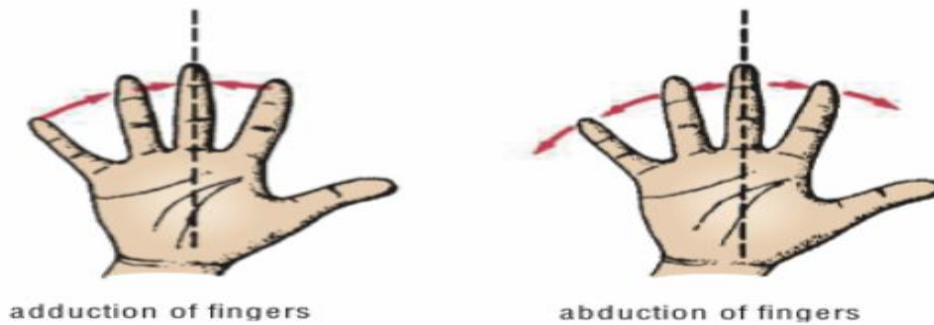


FIGURE 1.10 Some anatomic terms used in relation to movement.

*****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.(Fig1.11)

• **Lateral rotation**:- is the movement that results in the anterior surface of the part facing laterally.Fig(1.11)

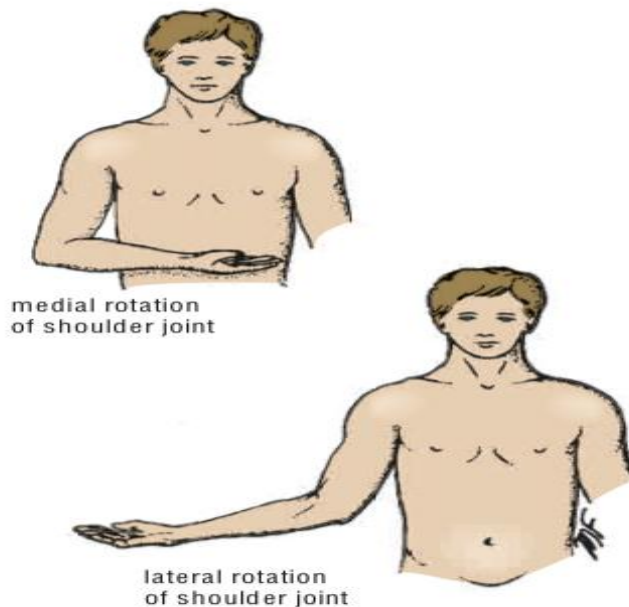


FIGURE 1.11 Medial and lateral rotation of shoulder

*****Pronation of the forearm** is a medial rotation of the forearm in such a manner that the palm of the hand faces posteriorly. (Fig1.12)

*****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.(Fig1.12)

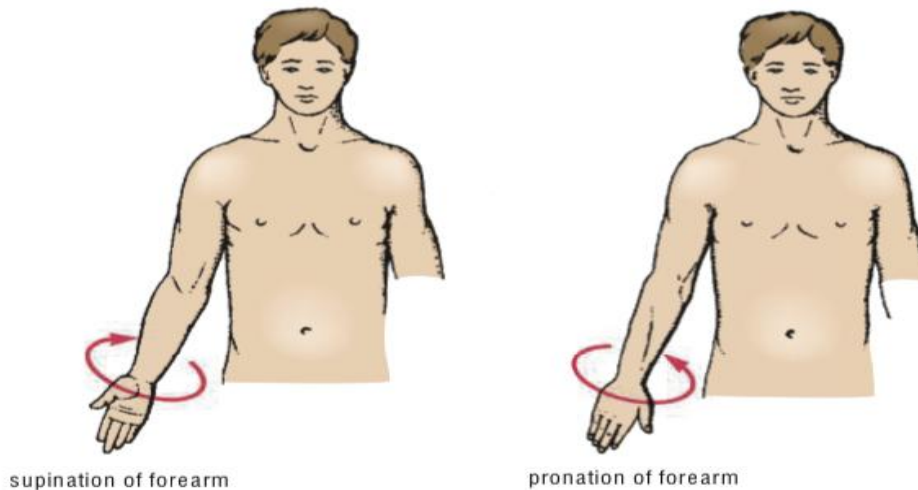


FIGURE 1.12 Supination and Pronation of forearm

*** **Inversion** is the movement of the foot so that the sole faces in a medial direction (see Fig. 1.13)

*** **Eversion** is the opposite movement of the foot so that the sole faces in a lateral direction.(see Fig 1.13)

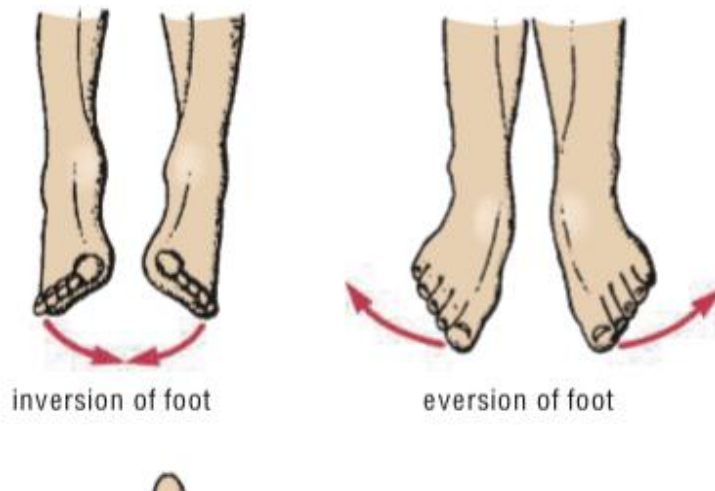


FIGURE 1.13 Inversion and eversion of foot

*** **Protraction** is to move forward; (see Fig1.14)

*** **retraction** is to move backward (used to describe the forward and backward movement of the jaw at the temporomandibular joints).(see Fig 1.14)

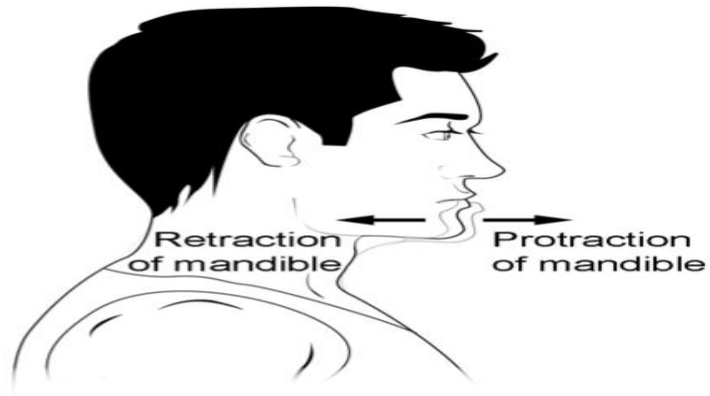


FIGURE 1.14 Protraction and Retraction

