

## 1st. Stage - Semester: 1

### Anatomy for Dentistry

#### Lec: 1

م.م زهراء محمد اللوزي

### Introduction

#### *Anatomy*

Anatomy is the oldest medical science . History traces its origin to early Greek civilizations . The word is derived from Greek word (anatom) which means taking apart . It is the study of structures or body parts and their relationships to on another.

Anatomy is divided in to :

**Gross anatomy - macroscopic.**

**Histology - microscopic.**

#### *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

Anatomy: describes the structures of the body:

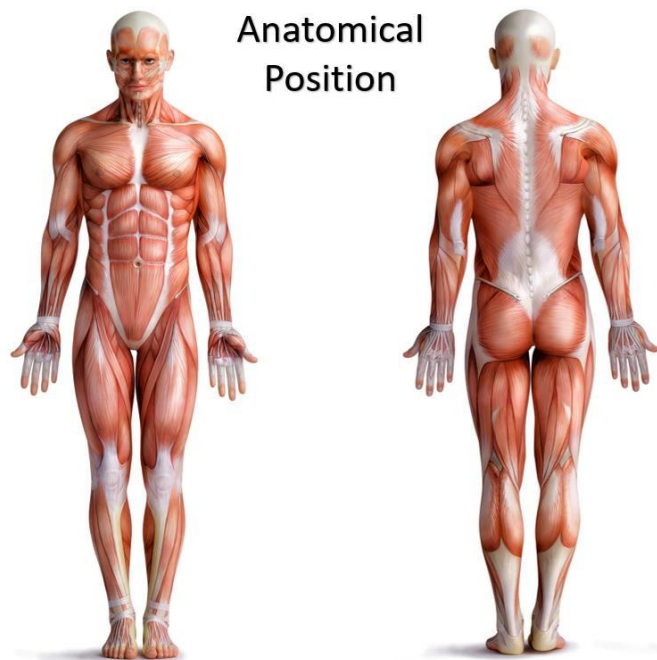
what they are made of

where they are located

associated structures

#### *Anatomical position*

In this position the body is straight in standing position with eyes also looking straight. The palms are hanging by the sides close to the body and are facing forwards. The feet also point forwards and the legs are fully extended. Anatomical position is very important because the relations of all structures are described as presumed to be in anatomical position.



## ***Planes***

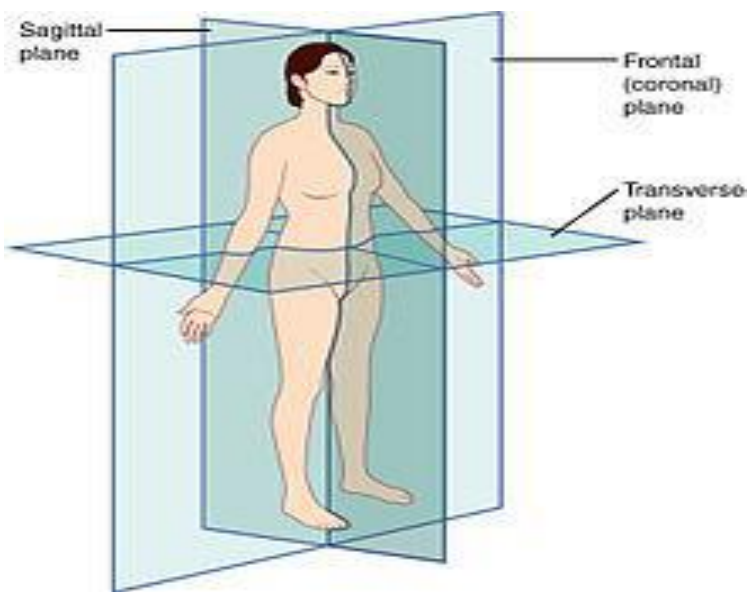
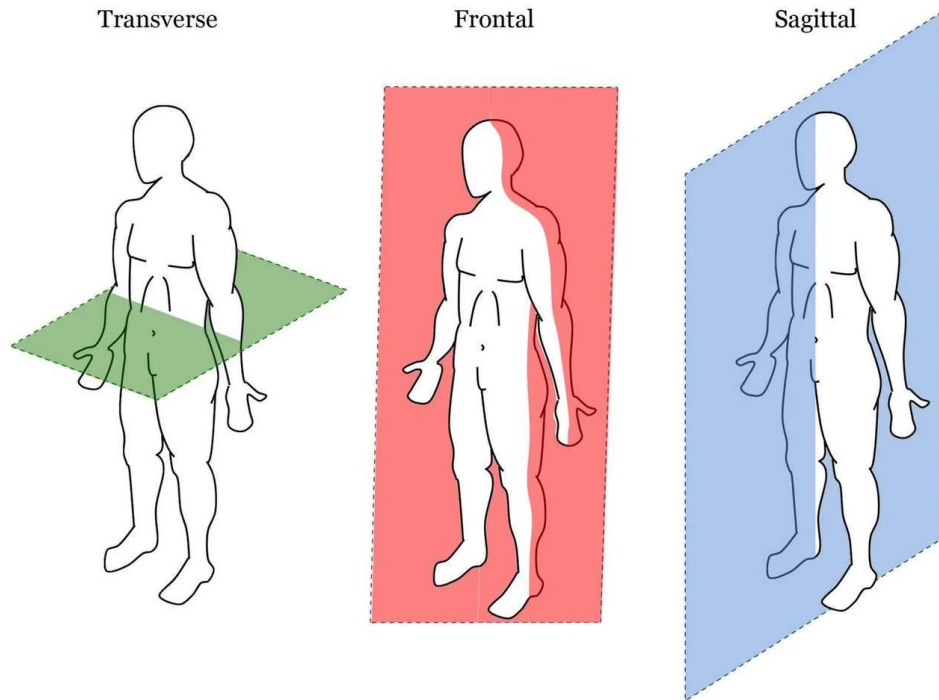
Three planes are commonly referred to in anatomy and medicine, they are:

□ **The *sagittal plane*** is the plane that divides the body or an organ vertically into right and left imaginary equal halves. If this vertical plane runs directly down the middle of the body, it is called the *midsagittal* or *median plane*. If it divides the body into unequal right and left sides, it is called a *parasagittal plane*, or less commonly a longitudinal section.

□ **The *coronal plane*** is the plane that divides the body or an organ into an anterior (front) portion and a posterior (rear) portion. The frontal plane is often referred to as a *frontal plane*, following Latin *corona*, which means "crown".

□ **The *transverse plane*** is the plane that divides the body or organ horizontally into upper and lower portions. Transverse planes produce images referred to as cross sections, some times anatomists used a fourth plan called the oblique plane.

□ *The oblique plane* is any plane other than the above described planes will be oblique plane.



## **Terms**

□ **Anterior** and **posterior**, which describe structures at the front (anterior) and back (posterior) of the body. For example, the toes are anterior to the heel, and the popliteus is posterior to the patella.

□ **Superior** and **inferior**, which describe a position above (superior) or below (inferior) another part of the body. For example, the orbits are superior to the oris, and the pelvis is inferior to the abdomen.

□ **Proximal** and **distal**, which describe a position that is closer (proximal) or further (distal) from the trunk of the body. For example, the shoulder is proximal to the arm, and the foot is distal to the knee.

□ **Superficial** and **deep**, which describe structures that are closer to (superficial) or further from (deep) the surface of the body. For example, the skin is superficial to the bones, and the brain is deep to the skull. Sometimes *profound* is used synonymously with *deep*.

□ **Medial** and **lateral**, which describe a position that is closer to (medial) or further from (lateral) the midline of the body. For example, the nose is medial to the eyes, and the thumb is lateral to the other fingers.

□ **Ventral** and **Dorsal**, which describe structures derived from the front (ventral) and back (dorsal) of the embryo, before limb rotation.

□ **Cranial** and **caudal**, which describe structures close to the top of the skull (cranial), and towards the bottom of the body (caudal).

□ **Sinister** for left, and **dexter** for right are used.

□ **Paired**, referring to a structure that is present on both sides of the body. For example, the hands are paired structures.

□ **Internal and external** are used to describe the relative distance of a structure from the center of an organ or cavity; for example,

the internal carotid artery is found inside the cranial cavity and the external carotid artery is found outside the cranial cavity.

□ ***Ipsilateral*** refers to the same side of the body; for example, the left hand and 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.

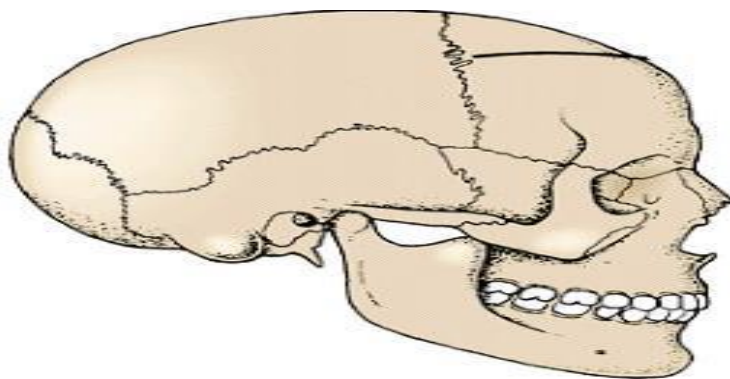
□ ***Supine*** position of the body is lying on the back.

□ ***Prone*** position is lying face downward.

## ***Movements***

### **Joint**

Is the site where two or more bones come together. Some joints have no movement (sutures of the skull), some have only slight movement (superior tibiofibular joint), and some are freely movable (shoulder joint).



## Axes

Axes are used to describe the direction of the movements at the joints.

**Flexion** is a movement that takes place in a sagittal plane. For example, flexion of the elbow joint, it is usually an anterior movement, but it is occasionally posterior, as in the case of the knee joint.

**Extension** means straightening the joint and usually takes place in a posterior direction.

**Lateral flexion** is a movement of the trunk in the coronal plane.

**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.

**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.

**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.

**Circumduction** is the combination in sequence of the movements of flexion, extension, abduction, and adduction.

**Protraction** is to move forward,

**Retraction** is to move backward, they both (**Protraction & retraction**) used to describe the forward and backward movement of the jaw at the temporomandibular joints).

**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.

**Opposition** brings the thumb and little finger together.

**Reposition** is a movement that moves the thumb and the little finger away from each other, effectively

**Elevation** means moving a part superiorly (closer to the top of the head), like shrugging the shoulders.

**Depression** is the moving a part inferiorly (closer to the feet), like moving those raised shoulders back down again, is depression.

Dorsiflexion and plantarflexion are terms used to describe movements at the ankle. They refer to the two surfaces of the foot; the dorsum (superior surface) and the plantar surface (the sole).

**Dorsiflexion** refers to flexion at the ankle, so that the foot points more superiorly. It is to elevating the foot, or moving it until the toes point upward.

**Plantarflexion** refers extension at the ankle, so that the foot points inferiorly, where the foot tilt until the toes point down.

Body cavities

Are hollow spaces within the human body that contain internal organs.

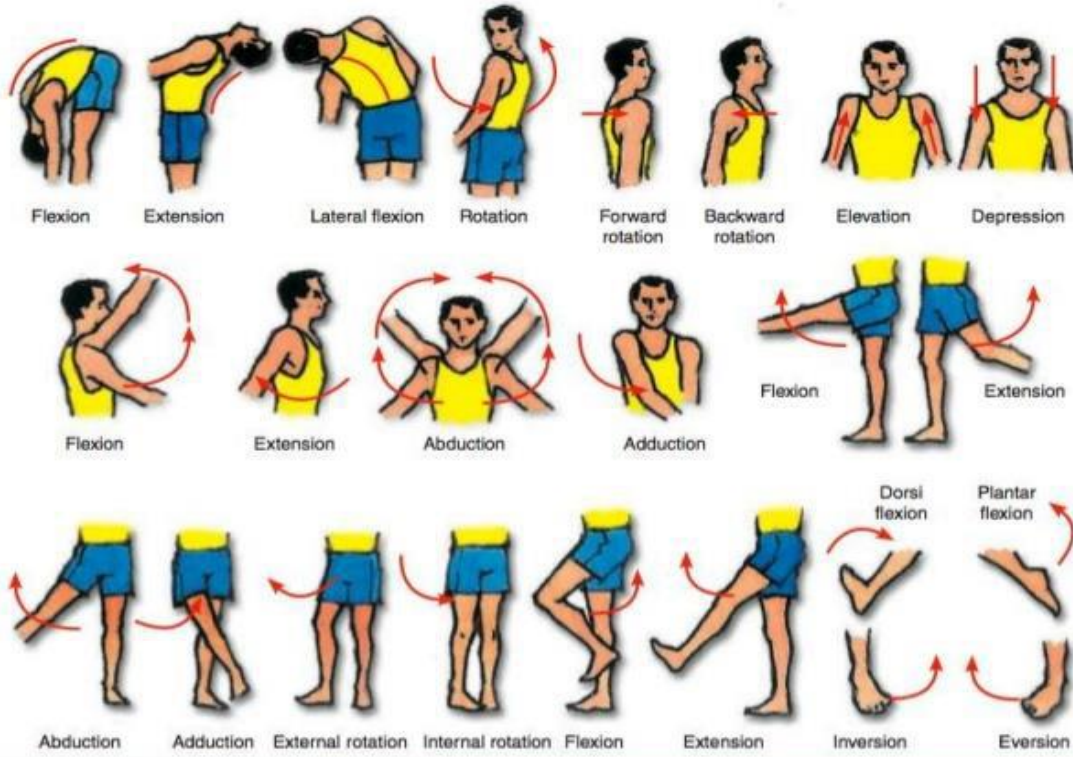
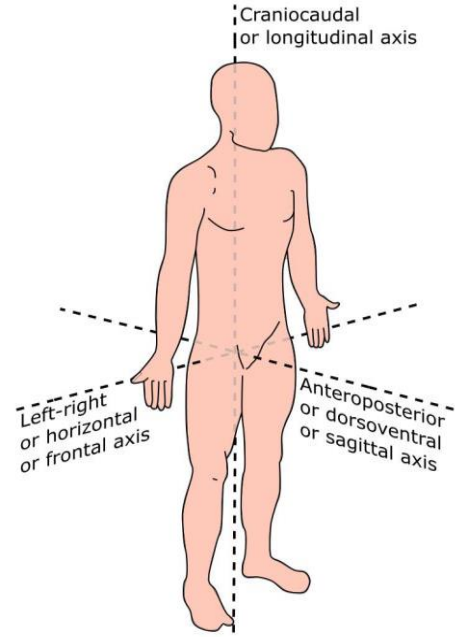
- **The dorsal cavity:** located toward the back of the body, is divided into the cranial cavity (which holds the brain) and vertebral or spinal cavity (which holds the spinal cord).

- **The ventral cavity:** located toward the front of the body, is divided into abdominopelvic cavity and thoracic cavity by the diaphragm. The abdominopelvic cavity is subdivided into abdominal cavity .





## Anatomical axes





(which holds liver, gallbladder, stomach, pancreas, spleen, kidney, small, and large intestines) and the pelvic cavity (which holds the urinary bladder and reproductive organs). The thoracic cavity is subdivided into the pleural cavity (which holds the lungs) and pericardial cavity (which holds the heart).

