Cartilage

is a non-vascular type of supporting connective tissue. It is a flexible and less organized than bone. Cartilage is not innervated and nutrient is poorly diffused to it so it heal very slowly.

There are three types of cartilage:

1. **Elastic cartilage** is springy, yellow, and elastic and is found in the internal support of the external ear and in the epiglottis.
2. **Hyaline cartilage** is the most widespread type and resembles glass. In the embryo, bone begins as hyaline cartilage. Ex., nose.
3. **Fibrous cartilag**e has many collagen fibers and is found in the intervertebral discs and knee.

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Joints

It is a site where two or more bones come together, whether or not movement occurs between them.

Joints are classified according to the tissues that lie between the bones:

1/Fibrous Joints

The articulating surfaces of the bones are joined by fibrous tissue , and thus very little movement is possible.

The sutures of the vault of the skull is an example of fibrous joints.

2/Cartilaginous Joints

Cartilaginous joints the bones are united by a plate or a bar of hyaline cartilage or by fibrocartilage.

Examples are the joints between the vertebral bodies and the **symphysis pubis.** No or a small amount of movement is possible.

3/Synovial Joints

The articular surfaces of the bones are covered by a thin layer of hyaline cartilage separated by a joint cavity .

This arrangement permits a great degree of freedom of movement.

Synovial joints can be classified according to the types of **movement** into:

■■ **Plane joints:** permits the bones to slide on one another. Examples of these joints are the sternoclavicular joint and joints between tarsal bones.

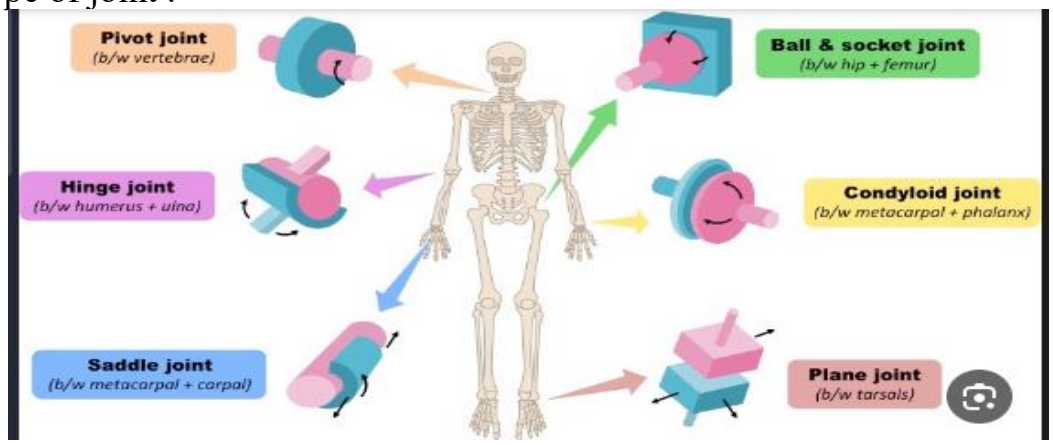
■■ **Hinge joints:** resembles the hinge on a door, so that flexion and extension movements are possible. Examples of these joints are the elbow.

■■ **Pivot joints:** rotation is the only movement possible. Ex., between vertebrae.

■■ **Condyloid joints:** The movements of flexion, extension, abduction, and adduction are possible together with a small amount of rotation. Ex., the metacarpophalangeal joints

■■ **Saddle joints:** resemble a saddle on a horse's back. These joints permit flexion, extension, abduction, adduction, and rotation. The best example of this type of joint is the carpometacarpal joint of the thumb .

■■ **Ball-and-socket joints:** free movements, including flexion, extension, abduction, adduction, medial rotation, lateral rotation, and circumduction. The shoulder and hip joints are good examples of this type of joint .



Ligaments A ligament is a cord or band of connective tissue uniting two structures. Commonly found in association with joints.

Bursae s a lubricating device consisting of a closed fibrous sac lined with a delicate smooth membrane. Its walls are separated by a film of viscous fluid.

Synovial Sheath is a tubular bursa that surrounds a tendon. The function is to reduce friction between the tendon and its surrounding structures.

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Blood vessels

are of three types:

1/Arteries transport blood from the heart and distribute it to the various tissues of the body .The smallest arteries,are referred to as **arterioles.**

The joining of branches of arteries is called an **anastomosis.**

Arteries do not have valves.

2/**Veins** are vessels that transport blood back to the heart; many of them possess valves. The smallest veins are called **venules** .

3/Capillaries are microscopic vessels in the form of a network connecting the arterioles to the venules .

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Lymphatic System

Lymphatic tissues are a type of connective tissue that contains large numbers of lymphocytes.. it is essential for the immunologic defenses of the body.

Lymphatic vessels

are tubes that assist the cardiovascular system in the removal of tissue fluid from the tissue spaces of the body.

is the name given to tissue fluid once it has entered a lymphatic vessel.

Before lymph is returned to the bloodstream, it passes through at least one **lymph node** and often through several. The lymph vessels that carry lymph to a lymph node are referred to as **afferent** vessels those that transport it away from a node are **efferent** vessels.

The lymph reaches the bloodstream at the root of the neck by large lymph vessels called the **right lymphatic duct** and the **thoracic duct**.