

HUMAN ANATOMY AND PHYSIOLOGY-1(BP101T)

UNIT: 2 SKELETAL SYSTEM

CLASS: 9

TOPIC: SYNOVIAL JOINTS

The unique characteristic of a synovial joint is the presence of a space called a synovial cavity or joint cavity between the articulating bones. The bones at a synovial joint are covered by a layer of **hyaline cartilage** called articular cartilage. The cartilage covers the articulating surfaces of the bones with a smooth, slippery surface but does not bind them together. Articular cartilage reduces friction between bones in the joint during movement and helps to absorb shock.

Articular Capsule A sleeve like articular capsule or joint capsule surrounds a synovial joint, **encloses** the synovial cavity, and unites the articulating bones. The articular capsule is composed of two layers, an outer fibrous membrane and an inner synovial membrane.

The **fibrous membrane** usually consists of dense irregular connective tissue (mostly collagen fibers) that **attaches** to the periosteum of the articulating bones.

The flexibility of the fibrous membrane permits considerable movement at a joint, while its great tensile strength (resistance to stretching) helps prevent the bones from dislocating, the displacement of a bone from a joint.

The inner layer of the articular capsule, the **synovial membrane**, is composed of areolar connective tissue with elastic fibers. At many synovial joints the synovial membrane includes accumulations of adipose tissue, called **articular fat pads**.

Synovial Fluid The synovial membrane secretes synovial fluid a viscous, clear or pale-yellow fluid named for its similarity in appearance and consistency to uncooked egg white. Synovial fluid consists of **hyaluronic acid** secreted by synovial cells in the synovial membrane and interstitial fluid filtered from blood plasma.

Its functions include reducing friction by **lubricating the joint**, supplying oxygen and nutrients to and removing carbon dioxide and metabolic wastes from the chondrocytes within articular cartilage.

Synovial fluid also contains phagocytic cells that remove microbes and the debris that results from normal wear and tear in the joint.

