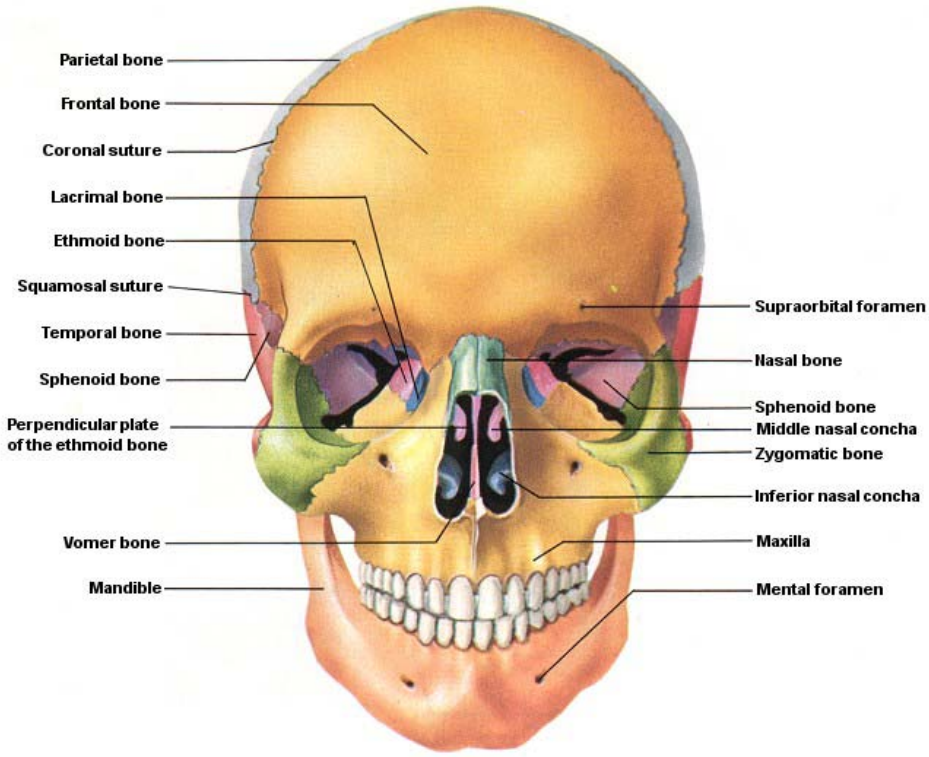
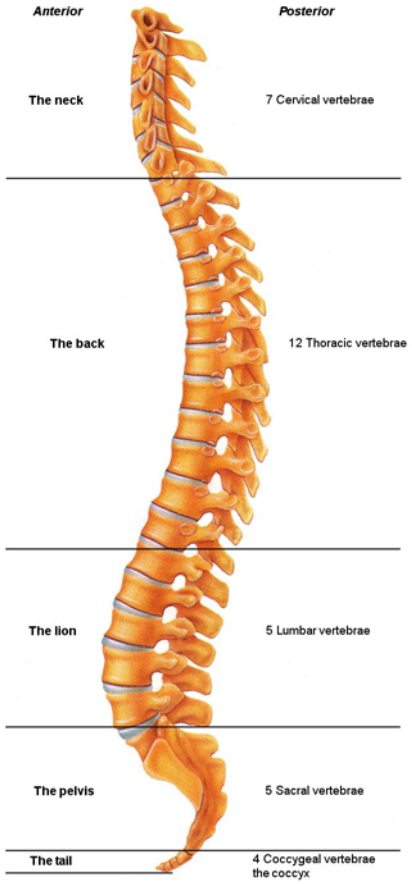


Anterior View of the Skull



The Regions and Curves of the Spine

JOINTS

A joint is a junction between two bones. There are three types of joints.

- The fibrous or immovable joint.
- The cartilaginous or slightly movable.
- The synovial or freely movable.

The Fibrous Joint

The opposing edges of bone are joined by fibrous tissue and are fixed so no movement is possible. The sutures of the skull are an example.

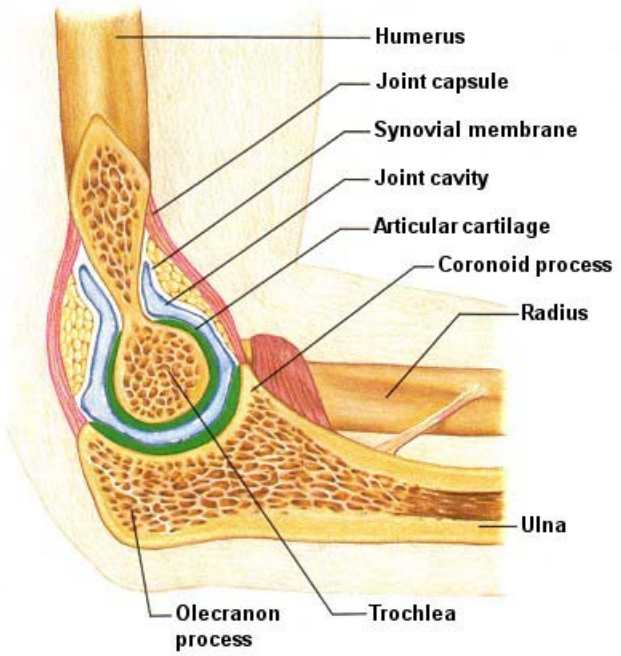
Cartilaginous or Slightly Movable

These joints are situated at the shoulder and pelvic girdle, and at the knee, ankle, elbow and wrist. Each joint is lubricated by a clear sticky fluid to allow freedom of movement.

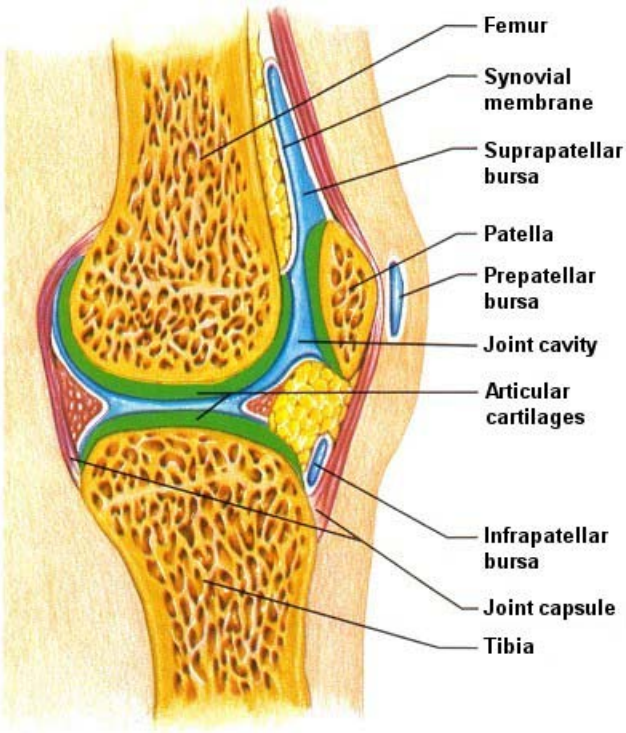
The ends of bones are so formed as to fit into each other. They are covered in hyaline cartilage and are held together by a cuff of white fibrous tissue called a capsule which has a smooth lining of specialised tissue called synovial membrane. This membrane secretes the lubricating fluid.

Synovial membrane covers every structure inside the bone joint except the hyaline cartilage. Where muscle or skin moves directly over a bony prominence as in the finger joints, patella, ischial tuberosity, olecranon process (elbow) etc., the areolar space is often enlarged and contains a small amount or sac of synovial fluid called a bursa.

Each joint is strengthened by ligaments. These are situated on the outside of the capsule and hold the bones together.



A Synovial Joint



The Knee Joint

The knee joint is more complicated as it supports the weight of the body and has extra ligaments to give support. Two ligaments cross at the centre of the knee joining the femur and the tibia called the cruciate ligaments. The rounded condyles of the femur are accommodated by the flat surface of the tibia, but have a built up crescent shaped cartilage to encompass the rounded shape of the condyles. These are called menisci. The outside capsule is strengthened by ligaments.

Pivot Joints

Both the neck atlas and axis joint enable the head to turn from side to side. The radio-ulnar joint allows the radius to rotate over the ulna in pronation and supination. The two joints are situated at the distal and proximal ends.

Synovial Joints

Synovial joints are made up of the following types:

1. Gliding	►	neural arch of vertebrae
2. Hinge	►	elbow, knee, ankle, phalange
3. Pivot	►	atlas, axis, radius, ulnar
4. Condylar and Saddle	►	jaw, metatarsals, metacarpals
5. Ball and Socket	►	hip, shoulder

Gliding

Gliding joints slide on each other, e.g. the neural arch of the vertebrae.

Condylar

The jaw, distal metacarpals and metatarsals are condylar joints. These joints move up and down.

Ball and Socket Joints

Examples are the hip and shoulder joints. All structures of the synovial joints are present in the shoulder joint. The glenoid cavity is surrounded by fibro-cartilage which holds the head of the humerus securely against the scapula. The capsule is very loose to allow for a wide range of movements. The biceps muscle tendon also assists in holding the bones together.

The head of the femur articulates with the acetabulum of the pelvis. (Innominate bone). It is covered with hyaline cartilage except for a small depression where the apex of a triangular shaped ligament is attached. The base of this ligament is attached to the lower part of the acetabulum. The acetabulum is also equipped with a rim of cartilage (labrum) to help secure the joint.

The strongest ligament in the body is situated on the lateral aspect of this joint. It is the ileofemoral ligament.