

TYPES OF SYNOVIAL JOINTS

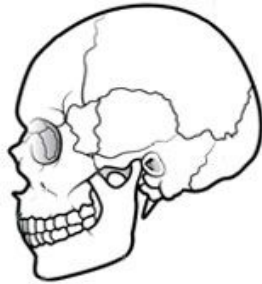


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WHAT IS JOINT?

A joint is a connection between one or more bones that allows them to move in relation to each other.

Structural classifications of joints include fibrous, cartilaginous, and synovial joints.



Fibrous
(Immoveable)



Cartilagenous
(Semi moveable)



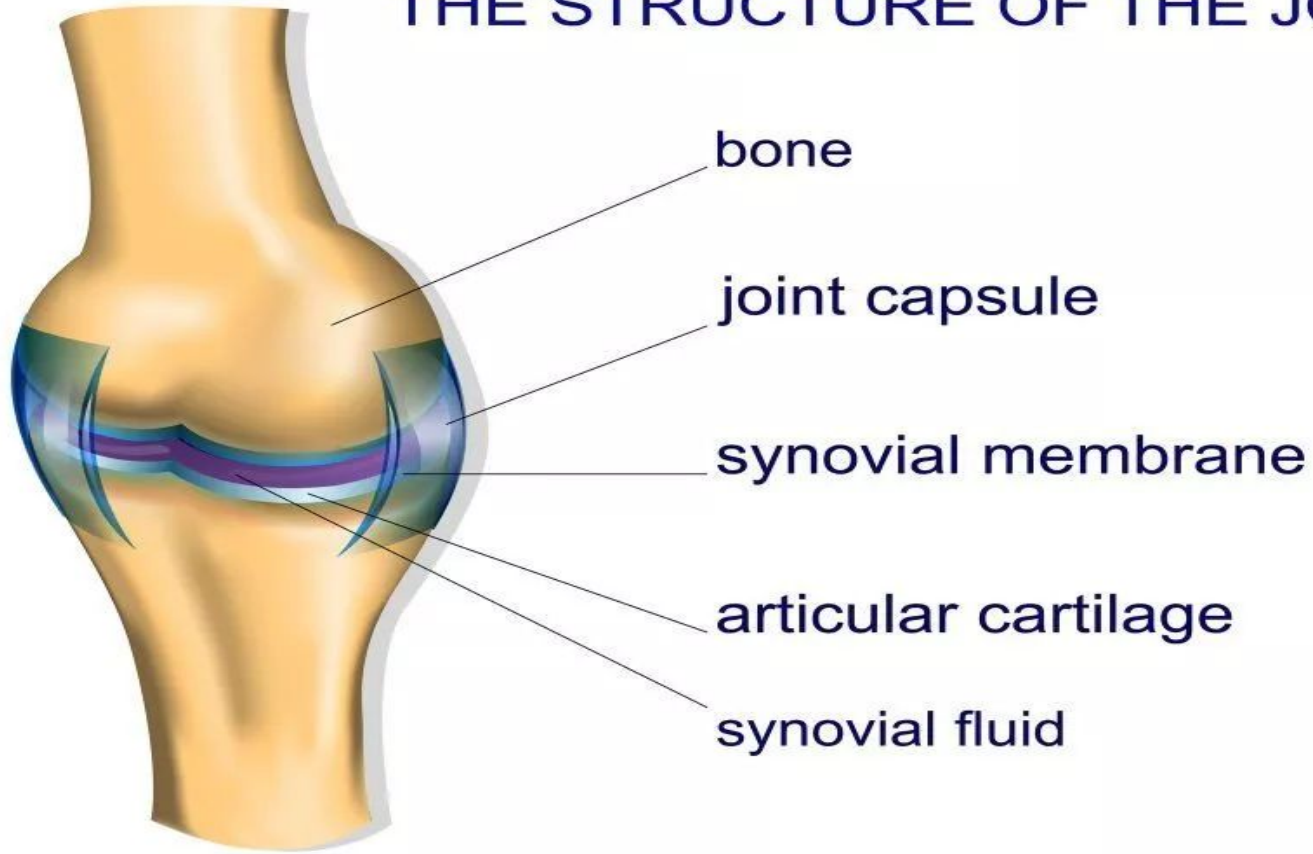
Synovial
(freely moveable)

WHAT DISTINGUISHES THE SYNOVIAL JOINTS?

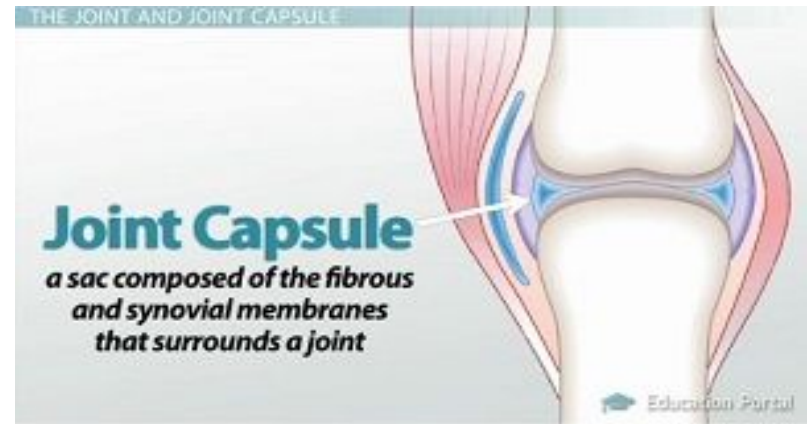


A synovial joint is a connection between two bones consisting of a cartilage lined cavity filled with fluid, which is known as a diarthrosis joint. This joints are the most flexible type of joint between bones.

THE STRUCTURE OF THE JOINT

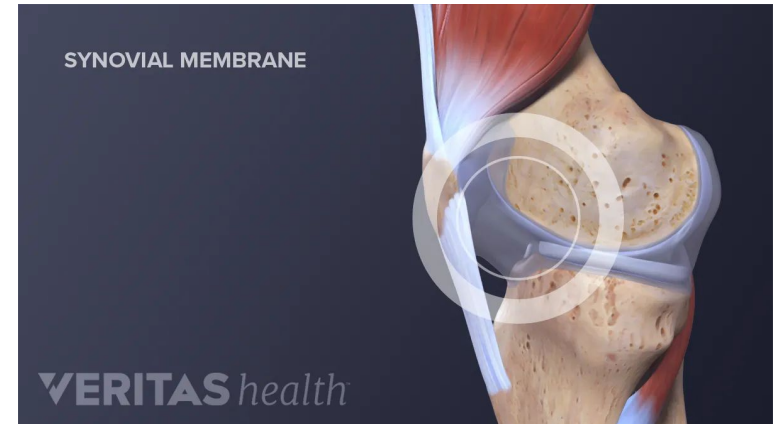


- joint capsule - is a connective tissue membrane that surrounds the joint cavity on the outside of the joint; it stabilises the joint, prevents the escape of joint fluid and prevents the penetration of debris;



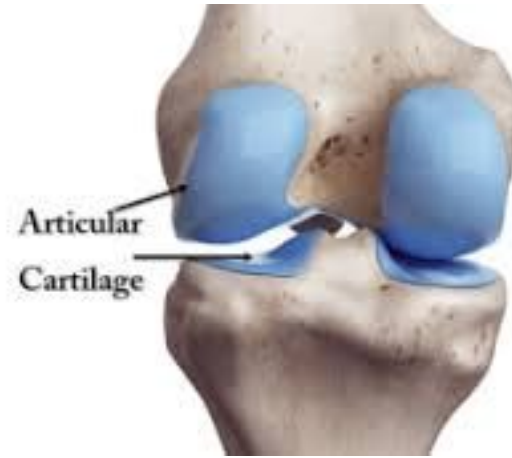
<https://study.com/cimages/multimages/16/joint-capsule.jpg>

- synovial membrane - the inner layer of the joint capsule that lines the joint cavity and produces joint fluid;



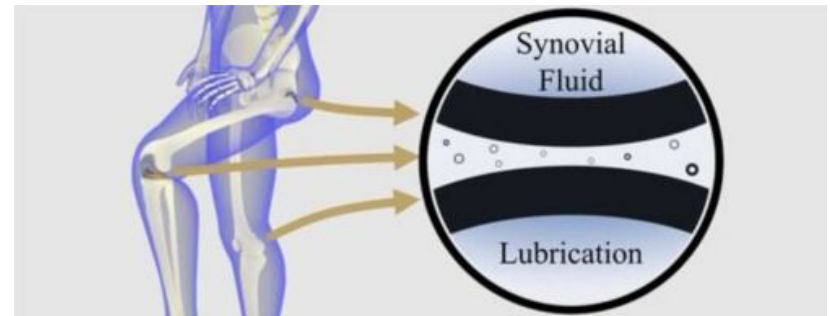
<https://embed.widencdn.net/img/veritas/8lopnmh4x/1200x675px/normal-synovial-membrane-knee.webp>

- articular cartilage - is the vitreous cartilage that covers the articular surface, it is highly resistant to abrasion.



<https://i0.wp.com/boneandspine.com/wp-content/uploads/2008/02/hyaline-cartilage.png?resize=350%2C200&ssl=1>

- synovial fluid - this fluid creates a lubricating cushion between the two bones, allowing them to glide past one another.



https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcR3gLi0cK7EUn40q1JXi6AUs__tX5x1N2SI1Q&usqp=CAU

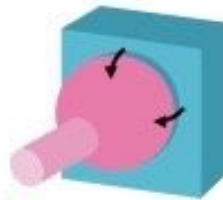
Pivot joint

(b/w vertebrae)



Ball & socket joint

(b/w hip + femur)



Hinge joint

(b/w humerus + ulna)



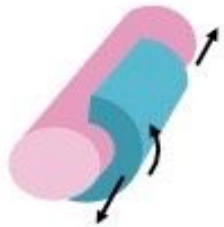
Condyloid joint

(b/w metacarpal + phalanx)



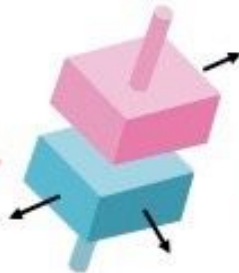
Saddle joint

(b/w metacarpal + carpal)



Plane joint

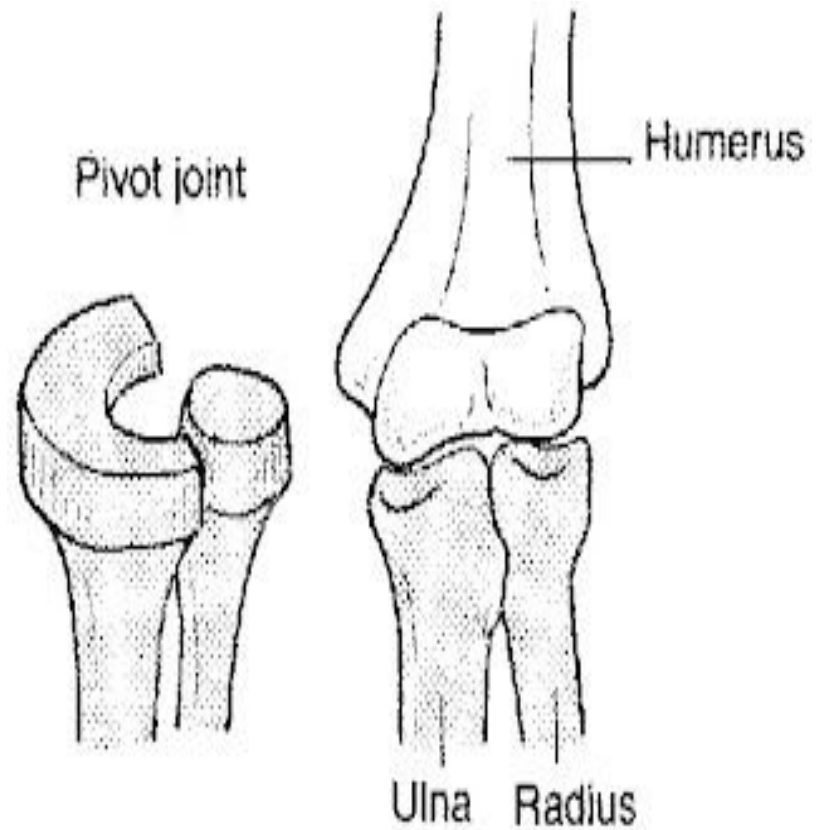
(b/w tarsals)



PIVOT JOINT

Pivot joint is a joint that allows only rotary movement around a single axis.

Pivot joints provide for the twisting movement of the bones of the forearm (radius and ulna) against the upper arm.



HINGE JOINT

The hinge joint is a uni-axial synovial joint. It allows bones to move in one plane with a limited movement along other planes. It typically connects two bones and includes a convex surface of one bone that articulates with a concave surface of the other bone.

The hinge joints usually allow flexion and extension. Some examples of hinge joints are elbow, knee, fingers, toes, etc.

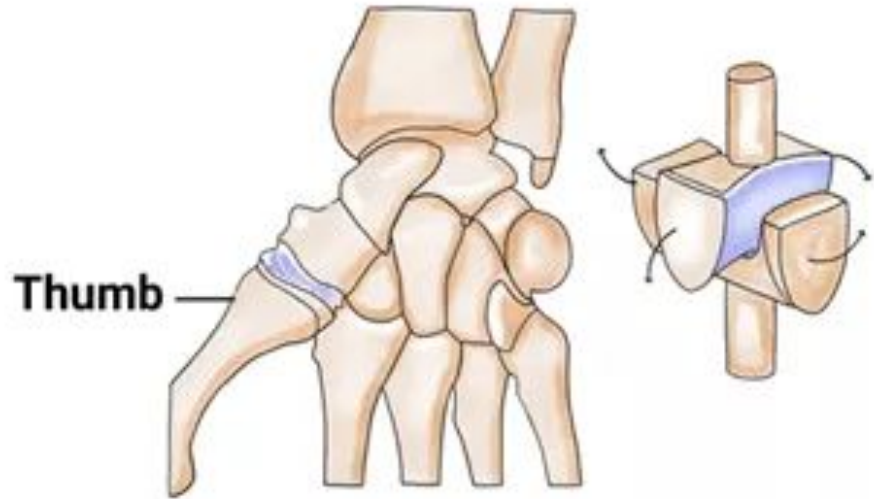


SADDLE JOINT

In saddle joint both bones have concave-convex articular surfaces. Saddle joints allow movement with two degrees of freedom.

They allow flexion / extension, abduction / adduction and therefore also allow circumduction.

Saddle joint



BALL AND SOCKET JOINT

Ball and socket joints are a type of synovial joint where the spheroid articular surface of one bone sits within a cup-like depression of another bone.

The ball and socket configuration allows for movement with 3 degrees of freedom, which is more than any other type of synovial joint:

- flexion / extension
- abduction / adduction
- rotation
- circumduction

Examples:

- glenohumeral joint
- hip joint

Ball & Socket Joint
eg. Hip Joint



CONDYLOID JOINT

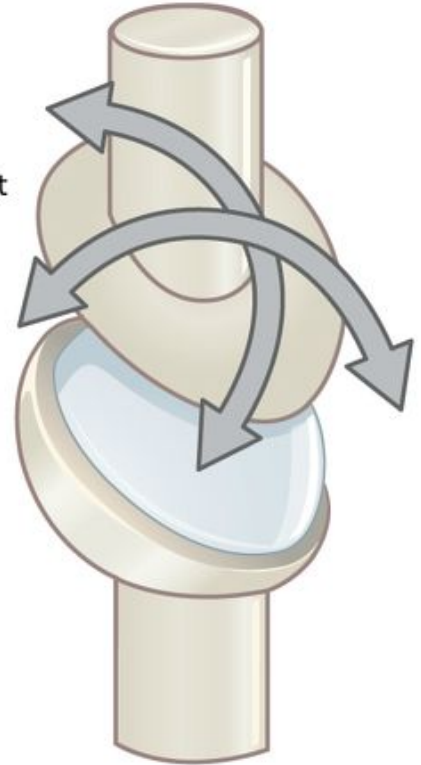
Condyloid joints are a type of synovial joint where the articular surface of one bone has an ovoid convexity sitting within an ellipsoidal cavity of the other bone.

Condyloid joints allow movement with two degrees of freedom. They allow flexion/extension, abduction/adduction and therefore also allow circumduction.

Examples:

- radiocarpal joint of the wrist
- metacarpophalangeal joints of the hand
- metatarsophalangeal joints of the foot

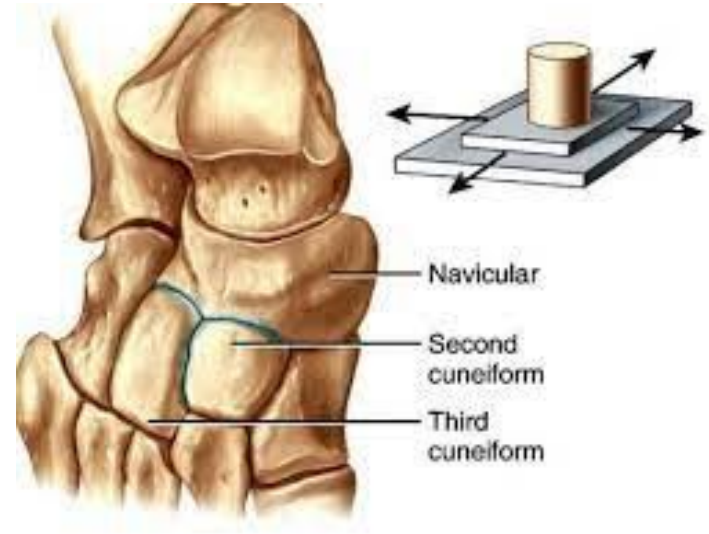
Condyloid Joint
eg. Radiocarpal Joint



PLANE JOINT

Plane joints, are a type of synovial joint between flat or near-flat articular surfaces.

Under normal conditions plane joints only permit sliding movement in the same plane as the articular surfaces, and do not allow movement in any other plane.



Examples

- facet joints of the spine
- intercarpal joints of the wrist
- intertarsal joints of the midfoot
- acromioclavicular joint

A cartoon illustration of a skeleton standing upright, holding a rectangular sign with a purple background and the word 'CURIOSITIES' written in black, stylized capital letters. The skeleton has a friendly expression with wide eyes and a slight smile. The sign is held in its right hand.

CURIOSITIES

1. There are 360 joints in the adult body.
2. The largest joint is the knee joint.
3. Infants do not have kneecaps.
4. The most mobile joints are the hip and shoulder.
7. The most susceptible joint to injury is the knee.
8. The characteristic 'popping toe' sound is caused by the sudden change in pressure that occurs in the joint fluid when the toes are pulled.
9. There are sensory nerves in the joints that respond to atmospheric changes in barometric pressure. People with joint pain can sense an approaching storm and falling atmospheric pressure.

DICTIONARY:

articular cartilage - chrząstka stawowa

joint capsule - torebka stawowa

synovial fluid - płyn maziowy

synovial membrane - błona maziowa

debris - zanieczyszczenia

kneecaps - rzepki

glide - ślizg

plane - płaszczyzna

convex - wypukły

axis - oś

capacity - pojemność

flexion - zgięcie

extension - wyprost

abduction - odwiedzenie

adduction - przywiedzenie

circumduction - obwodzenie

THANK YOU FOR YOUR ATTENTION.

BIBLIOGRAPHY

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