Joints of the Body

Athrology: The study of joints

Allow for the movement of body parts

Looser fit of joint equals more movement and the converse is true
ARTICULATIONS OF BONES

Classification of joints

Structural classification

Fibrous Joints

Two examples

Suture line

Fibrous connective tissue

Fibula

Tibia

Fibula

Tibia
Structural classification of Joints

Cartilaginous joints

Two examples

- Cartilage
- Fibrocartilage disc
- Vertebra
Structural classification of Joints

Synovial joints

Example

- Periosteum
- Extra-capsular ligaments
- Synovial cavity filled with fluid
- Fibrous capsule
- Synovial membrane
- Hyaline cartilage
- Articular capsule
Functional classification of joints

**Synarthrosis**: An immovable joint

Examples: Sutures of the skull
            Teeth in alveoli

**Amphiarthrosis**: Bones held together by connective tissue
                    Permitting slight movement.

Examples: Distal articulation between tibia and fibula
           Pubic symphysis
Functional classification of joints

Diarthrosis: Freely movable joint

Two distinguishing features

Fluid filled cavity between bones, the synovial cavity

Cartilage covers the articulating surfaces of the bones
Structural of Diarthrosis

- Periosteum
- Extra-capsular ligaments
- Synovial cavity filled with fluid
- Fibrous capsule
- Synovial membrane
- Hyaline cartilage
- Articular capsule
Movement of diarthrosis

Factors that limit movement of diarthrosis

Bone structure

  Hinge joint (elbow)
  Ball and socket (hip)

Joint ligaments

  Degree of tension on ligaments

Hormones

  Pubic symphysis; effects of relaxin
Types of diarthrosis

Gliding joint (plane joint)

Characterized by flat articulating surfaces

Articulation of vertebra with other bones of ankle and wrist
Types of diarthrosis

Hinge joint

Characterized by movement in one plane where convex Surface of one bone fits into concave surface of second bone

Movements permitted:
Flexion
Extension
Types of diarthrosis

Pivot joint

Permits rotational movement

Round surface of one bone articulating with ring or concave surface of second bone

Atlas and axis

Radius and ulna
Types of diarthrosis

Condylioid joint

Oval condyle of one bone fits into elliptical cavity of second bone

Permits movement in two planes
- flexion/extension
- abduction/adduction
Types of diarthrosis

Saddle joint

Saddle shaped articular surface of one bone fits into U-shaped surface of second bone

Joint between trapezius and metacarpal of thumb

Permits opposition
Of thumb
Types of diarthrosis

Ball and socket

Permits movement in three planes

*Flexion/extension*
*Abduction/adduction*
*Rotation/circumduction*

Shoulder

Hip
Shoulder joint

Joint with very free movement

Juxtaposition of the scapula and humerus

Acromion

Articular capsule

Coracoid process

Glenoid cavity

Scapula
Shoulder joint

Numerous ligaments and tendons

Tendons of five muscle and five ligaments – all join humerus to scapula

Rotator cuff muscles

Supraspinatus

Infraspinatus

Teres Minor

Subscapularis
Rotator cuff injury

Tendon of supraspinatus vulnerable to injury as it runs between head of humerus and acromion
Knee Joint

Three articulating surfaces

Two tibiofemoral

Patellofemoral

Numerous ligaments and tendons secure joint

Extracapsular ligaments
Knee joint

Intracapsular ligaments

Posterior cruciate

Ant. lat. condyle of tibia to med. condyle of femur

Anterior cruciate

Ant. med. condyle tibia to post. of lat. condyle of femur

Articular discs

Lateral meniscus

Medial meniscus