Anatomy & Physiology: Joints.

STRUCTURE.

- Structural classification: based on whether or not there is space tween the articulating bones; type of connective tissue that holds the bones together.
    - Fibrous joints: no synovial cavity; dense collagen-fiber-rich connective tissue.
        - 3 types of fibrous joints: sutures, syndesmoses, & interosseous membranes.
        - Sutures: fibrous joint made of thin layer of dense connective tissue. Only occurs in skull bones. Strength from irregular and interlocking edges. In infants and young children the sutures are amphiarthrotic; in adults the sutures are fused and immoveable (synarthrotic).
            - Synostosis: suture present in infants/children but ossified in adults. Synarthrotic.
            - Frontal/metopic suture: if the suture exists past 6 yrs old.
        - Syndesmoses: fibrous joint with some distance between the two bones. Dense connective tissue arranged in bundles (ligamentous) limiting the joint movement. E.g. distal tibiofibular joint.
            - Gomphosis: peg fitting into a socket. E.g. teeth and teeth sockets (alveoli).
        - Interosseous membrane: sheet-like dense connective tissue between long bones; amphiarthrotic. E.g. between ulna and radius; between tibia and fibula.
    - Cartilaginous joints: no synovial cavity; cartilaginous connective tissue (hyaline or fibrocartilage).
        - Synchondroses: hyaline connective tissue. E.g. epiphyseal plate. Synarthrotic (immoveable).

        - Symphasis: ends of bones covered by hyaline cartilage with a broad flattish fibrocartilage connecting the bones. All symphsis occur in the body's midline. E.g. pubic symphasis; sternal angle between the manubrium and sternal body; intervertebral joints between vertebral bodies.

    - Synovial joints: presence of synovial cavity; articular capsule with dense connective tissue and often accessory ligaments present. Diarthrotic (freely moving).

        - Bones covered with articular cartilage (a layer of hyaline) to reduce friction.

        - Articular (joint) capsule: sleevelike; encloses the joint cavity where the two bones articulate with each other. Has 2 layers: fibrous membrane (mostly collagen, dense) attaches to periosteum of bones; synovial membrane (inner membrane) of areolar connective tissue.

        - Articular fat pads: fatty pads act as cushioning.

        - Synovial fluid: lubrication and reduce friction. Clear and viscous. Fibroblast-like cells in synovial membrane secrete this hyaluronic acid. Also some fluid from blood plasma. Has phagocytic cells as "clean-up" crew.

        - Accesory ligaments.
        - Articular menisci: pads of fibrocartilage.

- Functional classification: based on how much movement is allowed in a joint.
    - Synarthrosis: immoveable.
    - Amphiarthrosis: somewhat moveable.
    - Diarthrosis: freely moveable joint.

- Bursae: fluid-filled sacs between skin-bones, tendons-bones, muscles-bones, or ligaments-bones.

- Tendon sheaths: reduce friction at joints. Tubelike bursa wrap around tendons.

FUNCTION.

CLINICAL SIGNIFICANCE.

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