Joint Types, Movements, and Disorders

Notes Ch 8

Joints (also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) are the sites where \_\_\_\_\_\_\_\_\_\_\_\_ bones meet.

Their job is to:

1.

2.

There are 2 types of joints:

A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - based on what materials binds the joints & the presence of a cavity

1)

2)

3)

B. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- based on the movement the joint allows

1)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- immovable

2)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- slightly movable

3)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- freely movable

I. Fibrous Joints

Characteristics:

* Joined by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_ joint cavity
* Most are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but it depends on the length of connective tissue fibers
* 3 types:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- rigid, interlocking joints of skull
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- bones connected by ligaments, bands of fibrous tissue; fiber length varies so movement varies (short= little/no movement; long= more movement)
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- peg-in-socket joints; only examples are teeth in alveolar sockets held by periodontal ligaments

II. Cartilaginous Joints

Characteristics:

* Bones joined by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Have \_\_\_\_\_\_\_\_ joint cavity
* Not highly movable
* 2 types:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- bar/plate of hyaline cartilage unites bones; most immovable (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_); Ex. Temporary epiphyseal plate joints; cartilage of 1st rib w/manubrium of sternum
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- bone in symphysis joint united with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; strong and slightly movable (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_); Ex. Intervertebral joints; pubic symphysis

III. Synovial Joints

* Bones separated by fluid-filled joint cavity
* All are freely movable (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* Examples include almost all \_\_\_\_\_\_\_\_\_\_\_\_\_\_ joints

Characteristics:

* Have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and tendon sheaths associated with them
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is influenced by 3 factors
* Classified into \_\_\_\_\_\_\_\_ different types
* Have 6 general features:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cartilage- hyaline cartilage covering bone ends; prevents crushing
  + Joint (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) cavity- fluid-filled space; unique to synovial joints
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (joint) capsule- 2 layers thick (external fibrous layer= dense irregular connective tissue; inner synovial layer= loose connective tissue that makes synovial fluid)
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fluid- viscous, slippery filtrate of plasma & hyaluronic acid; lubricated and nourishes articular cartilage; contains phagocytic cells
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ligaments-
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- thickened part of fibrous layer
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- outside the capsule
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- deep to capsule & covered with synovial membrane
  + Nerves & blood vessels

Other features of some synovial joints:

a. fatty pads- for cushioning

b. articular discs (\_\_\_\_\_\_\_\_\_\_\_\_\_) to improve fit of bone ends, stabilize, joint, & reduce wear and tear

Bursae and Tendon Sheaths

* Bags of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fluid that act as lubricating “ball bearing”
* Bursae- reduce friction where \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, or bones rub together
* Tendon Sheaths- elongated bursae wrapped around \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that are subjected to friction

Joint Stability influenced by:

1. Shape of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Number and location of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tone that keeps tendons taught as they cross joints; most important factor

Movements Allowed by Synovial Joints

All muscles attach to bone or connective tissue at no fewer than \_\_\_\_\_\_\_\_ points.

* Origin- attachment to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone
* Insertion- attachment to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bone

\* Muscle contraction causes insertion to move TOWARD origin\*

Movement at synovial joints can occur along \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planes

* Nonaxial- slipping movements only
* Uniaxial- movement in \_\_\_\_\_\_ plane
* Biaxial- movement in \_\_\_\_\_\_\_ planes
* Multiaxial- movement in or around in all \_\_\_\_\_ planes

Types of movements:

1. Gliding- one \_\_\_\_\_\_ bone surface glides/slips over another similar surface; Ex intercarpal joints, intertarsal joints, between articular processes of vertebrae
2. Angular- Increase or decrease \_\_\_\_\_\_\_\_\_ between 2 bones; along \_\_\_\_\_\_\_\_ plane
   1. Flexion= decrease angle
   2. Extension= increase angle (hyperextension= beyond angle)
   3. Abduction= AWAY from midline
   4. Adduction= towards midline
   5. Circumduction= involves all of above movements; movement as a cone
   6. Rotation= turning of bone around it’s own long axis (lateral= away from midline; medial= toward midline)
   7. Supination= palms anterior so radius & ulna are parallel; palm UP
   8. Pronation= palms posterior so radius & ulna are crossed; palm DOWN
   9. Dorsiflexion of foot= bend foot towards shin; point toes up
   10. Plantar flexion of foot= point toes down
   11. Inversion of foot= sole faces medially
   12. Eversion of foot= sole faces laterally
   13. Protraction- mandible juts out
   14. Retraction- mandible pulled towards neck
   15. Elevation= lift body part up
   16. Depression= lower body part
   17. Opposition= movement of thumb; grasping movement

**Types of Synovial Joints:** Based on \_\_\_\_\_\_\_\_\_\_\_ of articular surface & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ joint is capable of

|  |  |
| --- | --- |
| Name of Joint | Examples |
| 1. |  |
| 2. |  |
| 3. |  |
| 4. |  |
| 5. |  |
| 6. |  |

Joint Disorders

1. TMJ- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ joint ; most easily dislocated joint in body

Symptoms\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Cartilage Tears- due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; requires surgery to repair

3. Sprains- results when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are stretched or torn; common in ankle, knee, & lumbar region of back

4. Dislocation (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)- bones forced out of alignment; treatment is reduction

5. Bursitis- inflammation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ usually caused by a blow or by friction

6. Tendonitis- inflammation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ usually caused by overuse

7. Arthritis- most widespread crippling disease in US; over 100 different types; can be acute or chronic

Chronic includes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (most common type), rheumatoid arthritis (immune system issue) , and \_\_\_\_\_\_\_\_\_\_\_ arthritis (uric acid crystals in joints).