UNIT 6

JOINTS

Wrist and Hip

BY

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RHPT Lecture 6
Wrist Joint (radiocarpal joint)

Type of the joint: Synovial "ellipsoid" joint.

Articular parts:

1. Distal end of radius and articular disc covering the distal ulna.
2. Proximal raw of carpal bones (scaphoid, lunate and triquetral bones).

Capsule
- The capsule surrounds the joint.
- It is thickened by 2 main ligaments; medial and lateral collateral ligaments.

Movements of the Wrist Joint

I. **Flexion**: produced by
   Flexor carpi radialis and flexor carpi ulnaris).
   *N.B.: It is done by All long muscles crossing the joint anteriorly.*

II. **Extension**: produced mainly by
   Extensors carpi radialis (longus and brevis) and extensor carpi ulnaris.
   *N.B.: It is done by All long muscles crossing the joint posteriorly.*
III. **Adduction**: produced mainly by
Flexor and extensor carpi ulnaris, acting together.

IV. **Abduction**: produced mainly by
Flexor and extensor carpi radialis, acting together.

V. **Circumduction**: Combination of the above movements in succession.

**N.B.**: Abduction is less marked like adduction, because of the more projection of styloid process of radius than that of ulna.
**Hip Joint**

**Type of the joint:** Synovial "ball-and-socket" joint.

**Articular parts:**

1. Head of femur.
2. Acetabulum of hip bone.

N.B.: The articular part of acetabulum is a horse-shoe shaped. The central and inferior parts of acetabulum do share in articulation. The central part is fat-filled depression, called the acetabular fossa. The inferior deficient part of acetabulum 'called acetabular notch' is closed by a transverse ligament, from which the ligamentum teres arises to reach the fovea of head of femur.

The depth of acetabulum is augmented by attachment of a fibro-cartilaginous rim called acetabular labrum to its edge. This labrum bridges over the acetabular notch froming the transverse ligament.

**Attachment of Joint capsule:**

Proximally: It is attached to the margins of acetabulum and the transverse ligament.

Distally: It is attached as follows:

- Laterally to the medial aspect of the greater trochanter.
- Anteriorly to the intertrochanteric line.
- Medially to base of neck of femur.
- Posteriorly to the neck of femur, about half an inch proximal to the intertrochanteric crest.

**Capsular Ligaments:**

There are 3 ligaments surround and strenthen the capsule; each of them arises from one of the three bones forming the hip bone;

1. **Ilio-femoral ligament:** It is a Y-shaped ligament, passing on the anterior aspect of the capsule. It arises from the anterior inferior iliac spine to reach the intertrochanteric line of femur.
2. **Pubo-femoral ligament**: It arises from the ilio-pectineal junction, iliopectineal imenence and superior pubic ramus, passing on the medial aspect of the capsule to blend with the deep surface of ilio-femoral ligament to the tranchaneric line.

3. **Ischio-femoral ligament**: It arises from the ischium, passing on the posterior aspect of the capsule. Some fibers blend laterally to reach the base of the greater trochanter of femur.

**Stability of hip joint:**

This depends mainly on:

1. **Shape of the articulating bones**: Head of femur is completely fitted into deep socket, formed by acetabulum.
2. Three strong **extra-capsular ligaments**:
   - Ilio-femoral ligament: It is the strongest ligament in the body. It resists hyperextension of the joint.
   - Pubo-femoral ligament.
   - Ischio-femoral ligament.

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**Anterior Aspect of Hip Joint**

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**Movements of Hip Joint**

**Abduction**: produced by

1. Gluteus medius
2. Gluteus minimus
3. Tensor fasciae latae

**Adduction**: produced by adductor group of muscles;

1. Adductor longus
2. Adductor brevis
3. Adductor magnus
4. Gracilis
5. Pectineus.

**III. Flexion:** produced by
1. Ilio-psoas major, assisted by
2. rectus femoris,
3. sartorius,
4. pectineus.

**IV. Extension:** produced by
1. Gluteus maximus
2. The hamstrings; semitendinosus, semimembranosus and biceps femoris.

**V. Circumduction:** Combination of the previous movements, done respectively in series.

**VI. Medial rotation:** produced by
1. Tensor fasciae latae.
2. Gluteus medius
3. Gluteus minimus

**VII. Lateral rotation:** produced by
small '6' lateral rotators and gluteus maximus;
1. Piriformis.
2. Two obturators; obturator externus and obturator internus.
3. Two gemelli; superior gemellus and gemellus inferior.
4. Quadratus femoris.
5. Gluteus maximus.

**Bursa Related To Hip Joint**

**Psoas bursa**
- It is a bursa, underlying the psoas tendon in front of the hip joint. It is found in 10% of people.
- It represents an outpouching of synovial membrane of the joint through a defect in its anterior capsular wall.