Tikrit University
College of Veterinary Medicine

Lecture Title
Font (28)
Font type (pt bold heading)

Subject name: **Arthrology- Movement**

Subject year:2025

Lecturer name: Bader khatlan hameed

AcademicEmail:Baderkatlan74@tu.edu.iq

Font (20)

SCAN ME
Lecturers link

Arthrology

Movements

The movement of the joint are determined chiefly by the form and extend of the joint surfaces; They are usually classified as follows:

1- Gliding

sliding of one a plane surface on anther . e.g./ cervical vertebrae

2- Angular movement

Movement around one or more axes

e.g./ Flexion , Extension , like in the limbs (Elbow joint and knee joint ,e.g. Dorsal and volar or planter flexion .

3- Circumduction

e.g./ movements in which the distal end of the limb describes the circle or a segment of one . in man is easily.

4- Rotation ; Rotation of one segment around the longitudinal axis of the other segment forming the joint . e.g. Atlanto- axial joint .

5- Adduction and Abduction

Movement of the limb toward and away from the axis(median plane) of body.

3-Amphiarthrosis

These are joints between bodies of the vertebrae there is typically no joint cavity , but in certain situations one exists.

The articulation of the vertebral column

1- Intervertebral- fibro- cartilage

Each of these is a disc which occupies the space between the bodies of two adjacent vertebrae , it contains ventral longitudinal ligament and contains dorsal longitudinal ligament.

2- Sacro- Coccygeal joint

The first coccygeal vertebra articulates with sacrum, in old horses there is fusion between them .

Articulation of the thorax

a- Costo- vertebral articulation

Each typical rib from two joints with the vertebral bodies or transverse process of the thoracic vertebrae, one by its head and one by its tubercle.

b- Costo- transverse articulation

The tubercle of the rib and the transverse process of the vertebrae.

c- Costo-chondral articulation

Joint formed by the concave surface of the rib with convex end of cartilage.

d- Chondro – sternal articulation

The sternum is formed by three segments

1- maniburium sterni

2- Body of sternum

3- Xiphoid

These are connected together by a fibrous tissue .

Articulation of thoracic limb

1- **Shoulder joint**

Is formed by the junction of the distal end of the scapula with the proximal end of the humerus in glenoid cavity.

2- Elbow joint

Formed by the distal end of humerus and the proximal ends of the radius and ulna. The articular surface formed by :

a-condyle of the humerus .

b- Glenoid cavity of proximal end of radius and semilunar notch of ulna .

3- Radio – ulnar articulation

The shaft of ulna is attached to the radius above and below the interosseus space .

The proximal radio-ulnar joint is formed by two small convex facets on the ulna and the corresponding facet of radius .The distal extremity of the ulna is fused with radius.

4- Carpal joint

These are called knee joint in animals , it consist of

a- Radio – carpal joint , formed by the distal end of the radius and the proximal row of carpus.

b- Intercarpal joint

Between the two rows of the carpus

c- Carpo –metacarpal joint

Formed between the distal row of carpal bones and the proximal end of the metacarpal bone.

5- Fetlock joint

This is meta-carpo –phalangeal joint, formed by distal end of the large 3^{rd} metacarpal bone and the proximal end of 1^{st} phalanx and the proximal sesamoid bone.

6- Pastern joint

The proximal interphalangeal articulation , the articular surface of the 1^{st} phalanx and 2^{nd} phalanx .

7- Coffin joint

Articular surface , distal end of the 2^{nd} phalanx and 3^{rd} phalanx .

The articulation of the pelvic limb

The sacro -iliac Articulation

It is formed between the articular surface of sacrum and ilium . The joint cavity is a more cleft, and is often crossed by fibrous bands . The joint capsule is very close fitting and is attached around the margins of the articular surface. It is reinforced by the ventral sacro – iliac ligament , which surrounds the joint .

Ligament of the pelvic Girdle

These are consider as accessory to the sacro – iliac joint

1- **Dorsal sacro – iliac ligament**

2-Lateral sacro – iliac ligament

3- Sacro – sciatic ligament

4- ilio- lumbar ligament

Symphysis Pelvis

Is formed by the junction of two pelvis bones at the ventral median – line . In the young subject the bones are united by a layer of cartilage (fibro cartilaginous) , in the adult the latter is gradually replaced by bone . no probable movement here .

The Hip Joint

Is formed by the proximal end of the femur and the acetabulum .

Articular surface: The head of the femur presents an almost hemispherical articular surface. The acetabulum is a typical cotyloid cavity. Its articular surface is somewhat crescentic , being deeply cut into medially by the acetabular notch and fossa. The both surface of the head of femur and acetabulum are crossed by transverse acetabular ligament. Another ligaments are round ligament and accessory ligament.

The synovial membrane is present within the contents of the capsule reflected outside the joint to form a pouch .

The movements of this joint is capable of all the movements of a ball and socket joint like flexion , Extension , Abduction , Adduction , Rotation and Circumduction.

The Stifle Joint

This joint , which corresponds to the knee- joint of man , it consist of two joints

1- The femoro – patellar joint

2- The femoro – tibial joint

Femoro – patellar joint

Is formed between the trochlea of the femur and the articular surface of the patella.

Articular surface: of the femur are trochlea of two ridges medial and lateral .

The articular surface of the patella is smaller than that of the trochlea.

The accessory ligaments at this joint include :

1- Femoro – patellar ligaments

2- Patellar ligament

* medial

* middle

* lateral

The femoro – tibial articulation

Is formed between the condyles of the femur , the proximal end of the tibia and the condyles of the femur .

There are lateral and medial menisci which are crescentic plates of fibro – cartilage which produce congruence in the articular surface. Each has a proximal concave surface adapted to the

condyle of the femur and a distal surface which fits the corresponding condyle of the tibia .

Ligaments : Are four

*Two are collateral ,(1-medial 2- Lateral) ligaments.

* Two are cruciate , (1- Anterior 2- Posterior) ligaments.

Movements of the stifle joint are :

Flexion and Extension

Tibio – Fibular Articulation

This joint is formed by the head of the fibula articulation with a crescentic facet of the lateral condyle of the tibia .

The shaft of the fibula is attached to the lateral border of the tibia by the interosseus membrane of the leg.

The Hock joint

Composed of

1- Tibio-tarsal articulation

2-Inter tarsal articulation

3- Tarso- metatarsal articulation

a- Is formed by the trochlea of the tibial tarsal bone and the corresponding surface of the distal end of the tibia.

b- The proximal inter tarsal (between the tibia and fibular tarsal bone).

The Distal intertarsal (between the central tarsal and the bone below and on other side.

c- Tarso- metatarsal joint

Between tarsal and metatarsal bone, those between the proximal ends of the metatarsal bones and those formed by the third tarsal with the bones on either side.

Common ligaments

1- Lateral ligament a- long lateral ligament

b- Short lateral ligament

2- Medial ligament a-long medial ligament

b-short medial ligament

3- Planter ligament

4- Dorsal ligament

Movements

*Flexion

* Extension