University of Mosul
Lecture No.:1
College of Veterinary Medicine
Date:10/2/2025
Unit of Scientific Affairs
Website:

Lecture title: lameness

Lecturer Affiliation: department of surgery and theriogenology

Summary:

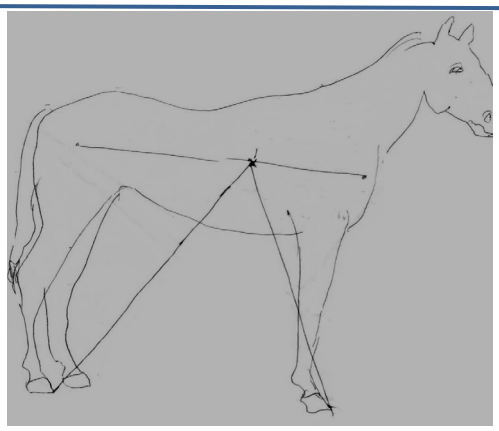
Definition:- It is an abnormal stance or gait caused by either a structural or a functional disorder of the locomotor system in one or more limbs .
-Lameness is a common veterinary problem in racehorses and pleasure horses.
-Lameness is not a disease but a clinical sign

Lameness is the most common cause of loss in use in horses. It can be caused by

1-Trauma or injuries to the musculoskeletal system(bones ,muscles ,joints, tendons and ligaments) and nervous system (brain ,spinal cord and nerves).
2- Congenital or acquired disorders.
3- Infection.
4- Metabolic disorder.
5- Circulatory and nervous disorders, or any combinations of these.

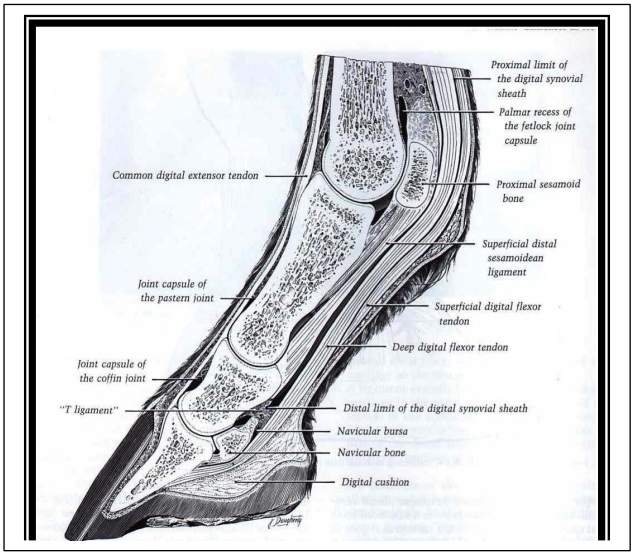
Classification of lameness
1- Supporting limb lameness:- This is evidenced or appeared when the horse supporting weight on the foot or when the horse lands on it. Causes mostly due to bones injury or injury to joints collateral ligaments or motor nerves.
2- Swinging lameness:- This is evident when the limb is in motion. Pathologic changes involving joint capsules, muscles, tendons, tendon sheaths or bursas are considered to be the cause.
3- Mixed lameness:- This is evident both when the limb is moving and when it is supporting weight. Causes can involve any combination of the structures affected in swinging or in supporting limb lameness.
4-Complementary lameness:- Pain in the limb will cause uneven distribution of weight on another limb or limbs which can produce lameness in a previously affected limb or opposite limb.

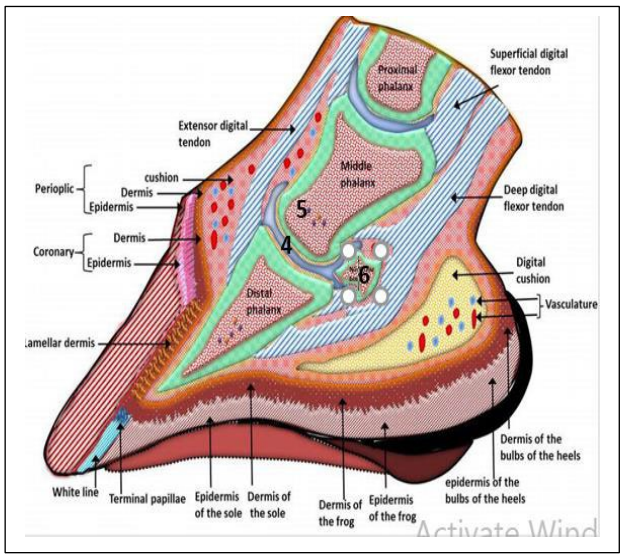
***Where the mass of the horse is centered?**
It will vary with horses shape. It is most commonly located in the middle of the rib cage just caudal to the line separating the cranial and middle third of the body. Because the center of gravity is located more cranially, the forelimbs bear 60-65% of the body weight. This is causes an increased stress in the forelimbs resulting in an increased incidence of lameness in these limbs.



Hoof

The hoof (like your finger nail) is a highly cornified (horny) epidermal structure lacking in blood vessels and nerves. The foot includes the hoof and underlying corium (dermis), skin between the bulbs of the heels, digital cushion, distal phalanx(coffin bone) and its cartilages, distal end of the middle phalanx, navicular bone(distal sesamoid) and navicular bursa, coffin joint, ligaments, tendons of the insertion of the common digital extensor and deep digital flexor muscls , Vessels and nerves.





The hoof consists of

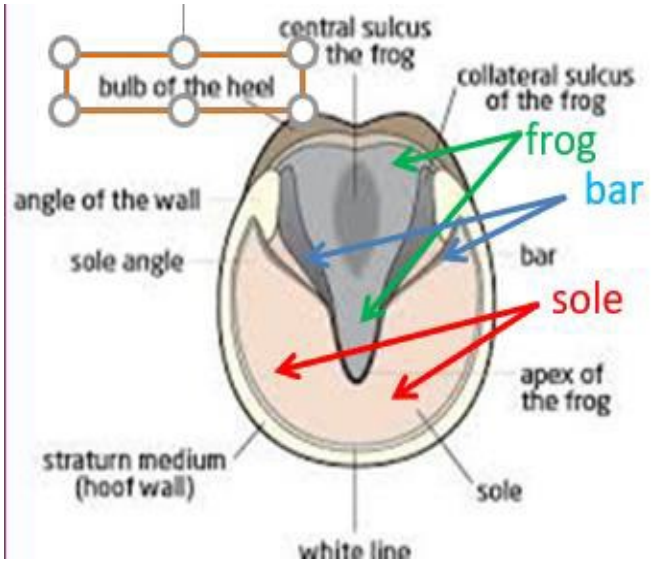
1-Wall
2-Sole
3-Frog
4-Bulb.

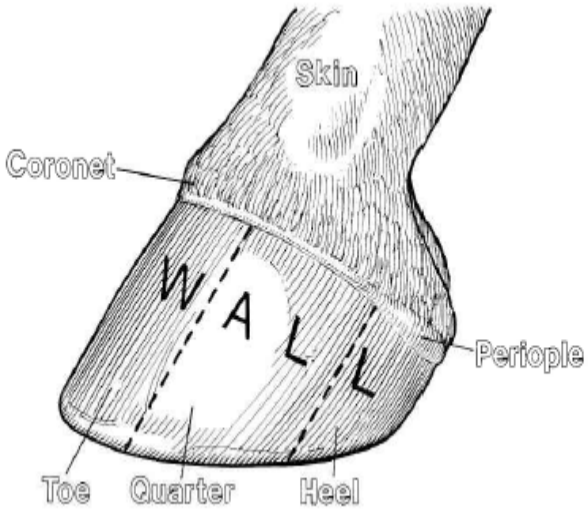
-The wall is the part visible in the standing horse. It comprises a toe in front, quarters on the sides, and medial and lateral heels at the back, where the wall reflects on itself to form medial and lateral bars .

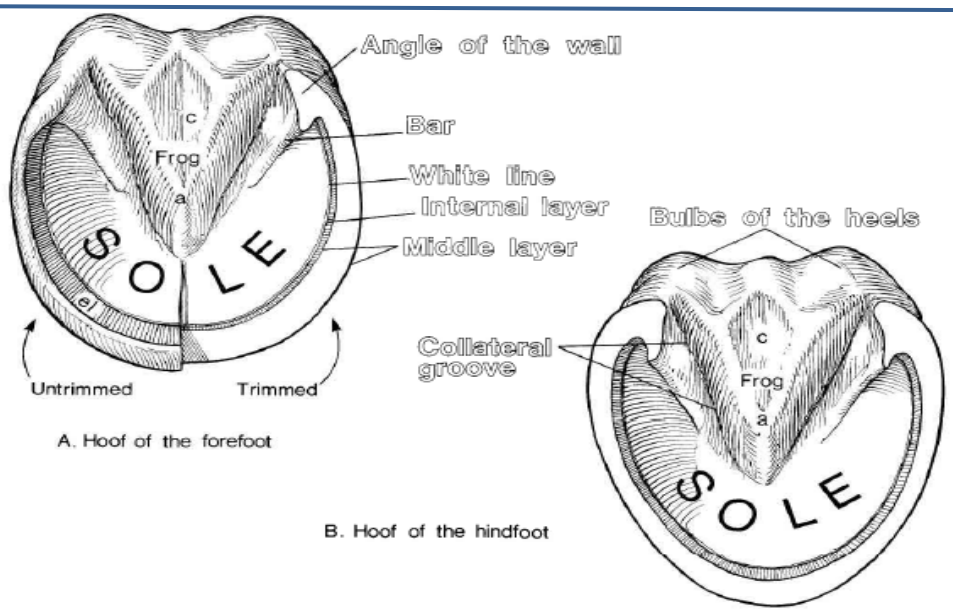
-The sole fills the space between the wall and frog.
-The triangular frog projects into the sole from behind and closes the gap between the heels.

Some important anatomical landmarks of Hoof

-Periople is the upper most, outer, thin, shiny layer of the hoof
-Coronet is the junction of the hoof and the skin.
-White line is the junction between the wall and the sole on the ground surface of the foot.
-Coronary bands is the proximal part of the hoof overlying the coronary corium that located at the junction of the leg's hair line and the hoof.







The layers of hoof wall

1- Stratum tectorium:- which is a thin horny layer extending from the priople.

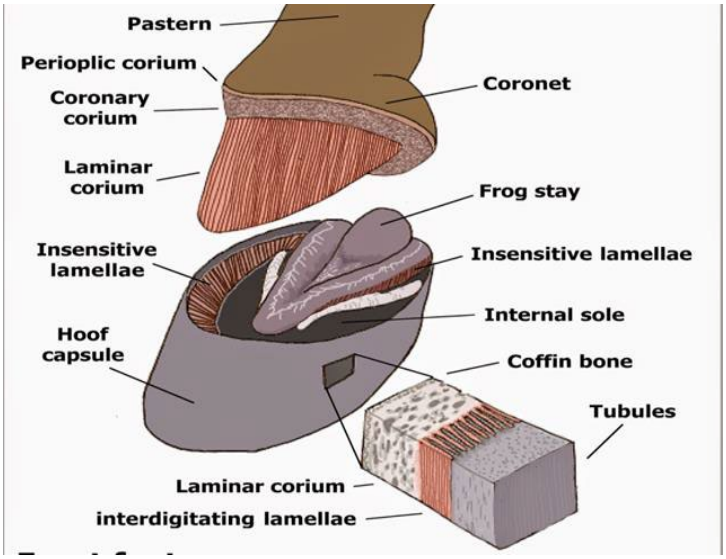
2- Stratum medium:- which form the bulk of wall which consisting mainly of horn tubules and interlobular horn.

3- Stratum internum :- containing about 600 primary epidermal laminae and approximately 100 microscopic secondary laminae branch at an each primary lamina.

Nutrition of the hoof

The corium is collagenous connective tissue containing many nourishing blood vessels and nerve endings. lt blends into the periosteum of the distal phalanx.

1. Perioplic corium
2. Coronary corium
3. Corium of wall
4. Corium of sole
5. Corium of frog



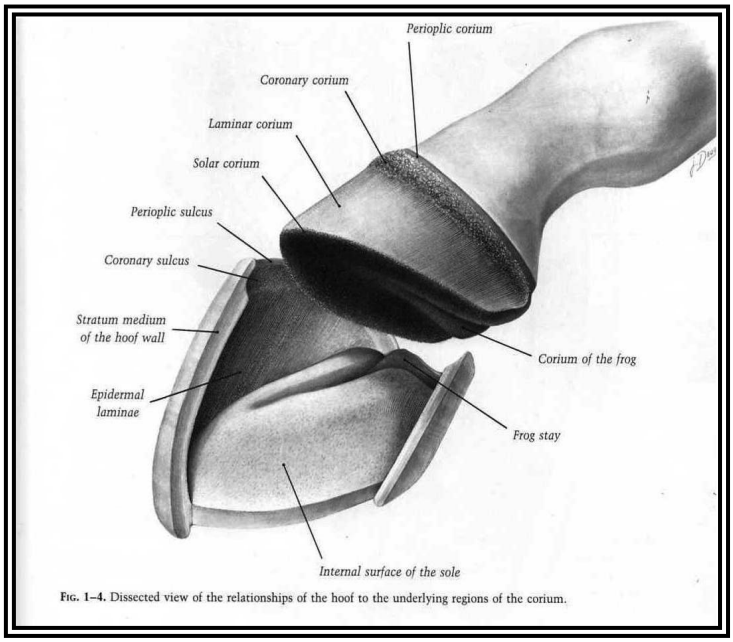


FIG. 1–4. Dissected view of the relationships of the hoof to the underlying regions of the corium.

- **Nerve and blood supply of the foot**
- **1. Lateral palmar nerve**
- **2. Lateral palmar vein**
- **3. Lateral palmar metacarpal nerve**
- **4. Lateral palmar digital nerve**
- **5. Dorsal branch of 4.**

- 6. Lateral digital artery
- 7. Lateral digital vein
- 8. Ligament of the ergot
- 9. coronary venous plexus
- *The vessels and nerves on the medial
- side are distributed and named the same
- substituting medial for lateral.
- The ligament of the ergot must be distinguished
- from the lateral (or medial) palmar digital nerve
- in nerving operation (neurectomy).