Acute Laminitis

Causes, identification of symptoms and first aid
Defining Acute and Chronic Laminitis

- **Acute laminitis:**
  From the time the inciting cause initiates the cellular changes in the laminae up to the time that PIII begins to rotate or sink in the hoof capsule

- **Chronic Laminitis:**
  Begins when PIII rotates or sinks in the hoof capsule
Founder vs. Laminitis

Laminitis:
- Inflammation of the laminae
  (-itis -- denotes inflammation of an organ or tissue)

Founder:
- The term used to describe the rotation or sinking of PIII within the hoof capsule.
INJURY

VASCULAR AND CELLULAR RESPONSE

ACUTE INFLAMMATORY EXUDATION

STIMULUS PROMPTLY DESTROYED

NO OR MINIMAL NECROSIS OF CELLS

EXUDATE RESOLVED

EXUDATE ORGANIZED

SCARRING

RESTITUTION OF NORMAL STRUCTURE

STIMULUS NOT PROMPTLY DESTROYED

NECROSIS OF CELLS

TISSUE OF STABLE OR LABILE CELLS

FRAMEWORK INTACT

REGENERATION OF NORMAL STRUCTURE

SCARRING

TISSUE OF PERMANENT CELLS

FRAMEWORK DESTROYED

SCARRING

SCARRING
Factors Precipitating Laminitis

- CHO overload
- Systemic infections
- Colic and impactions
- Stress and exertion
- Dehydration
- High fevers
- Dystocia
- Excessive concussion
- Steroid reactions
- Mechanical founder
- Excessive load bearing
- Black Walnut toxicity
- Endocrine dysfunction
Early Acute Symptoms

- Restlessness, shifting weight from one foot to another
- Reluctance to turn and walk
- Stance, Weight is shifted to the rear feet if the front are affected, or placed close as if standing on a box when all four are affected
- Pulses are elevated in the digital arteries
- Fever in the feet
Biopsies of the laminae in acute laminitic horses reveal histological evidence of tissue necrosis can occur up to 36 hours before any physical symptoms or tissue inflammation.
First aid

- Call the vet
- Provide some sort of support to the frog to help reduce the strain on the laminae by:
  - Sand or mud footing
  - Padding taped to the frog: roll of gauze, foam insulation, cotton
  - A “Lily Pad” available from farrier and vet suppliers
- Ice
- Hot and cold packs alternately
- Possibly hand walking cases that aren’t too severe
- Elevate the heels of the hoof with wedges up to 1” or 1½”
- Trim toes blunt to relieve breakover stress
Overview of methods to reduce foundering

- Mud Footing
- Sand Footing
- Foot Wrap Materials
  - Cotton Bandages
  - Rigid Foam
  - Foam Rubber
- Plaster Sole Casts

- Frog Support
  - Heart Bar Shoe
  - Gauze Roll
  - “Lilly Pad”
  - Synthetic Impression Materials

- Unload hoof capsule
  - Slings
  - Float Tank
First Aid Frog Supports
Treatments during the acute stage

- Treat the inciting cause if possible
- Nonsteroidal anti-inflammatories i.e. Butazolidin, Banamine
- Vasodilators - acepromazine, isoxuprine and nitroglycerine
- DMSO via IV or stomach tube
- Support and protect the foot to provide an optimal opportunity for healing
- Follow progress of the displacement of the coffin bone with frequent radiographs
Factors used to predict the outcome of a Laminitis Episode

- Initial cause
- Duration of Acute Phase
- Medical support
- Rotation or Sinking
  - Hoof capsule - PIII relationship changes
    - Degrees of rotation
    - Rate of rotation or sinking
    - Dorsal hoof wall thickness
    - Descent of PIII in the hoof capsule
    - Thickness of the sole
The eventual outcome of a laminitic episode is determined by the severity of the initial metabolic insult to the Laminae.
Data suggests that the rate of change and the distance PIII descends in the hoof capsule are useful indicators in the prediction of the outcome.
Effects of PIII Rotation

- Tearing of Laminae
- Compression of Corial tissues and loss of blood flow
  - Coronary Band
  - Sole
  - Sensitive Laminae
Disruption of blood flow and compression of corial tissues
Chronic Changes

- Changes in the feet:
  - depression in the coronary band
  - flattened sole
  - Stretched White line
- Downward bulging sole
- Perforation of the sole by PIII
- Separation of the wall at the coronary band