

Lameness in dairy animal – Investigation and management



Lameness – More occurrences are after calving

Reasons:

- Reduced hoof growth
- Increased Hoof wear
- Wet conditions
- Increased pedal movements
- Housing and floor surfaces
- Feed
- Immune suppression
- Diseases around calving
- Decreased lying times

Calving and lameness

During lactation nutrients (sulphur amino acids are diverted towards milk production- reduces hoof growth.

- High milk yielding animals are more affected
- Cows that develop lameness in their first lactation are more likely to become lame in subsequent lactations
- High milk yield is contributory factor in lameness.

Increased Hoof wear

- Increased enzyme activity within hoof during periparturient time and increase in standing time (discomfort and increased udder size).
- Thinning of sole – decreased growth and increased wear
- More chances of hoof injury and infection

Immunosuppression and periparturient diseases

- Immunity level is dropped during this time
- Diseases such as milk fever, mastitis further responsible for hoof infection.

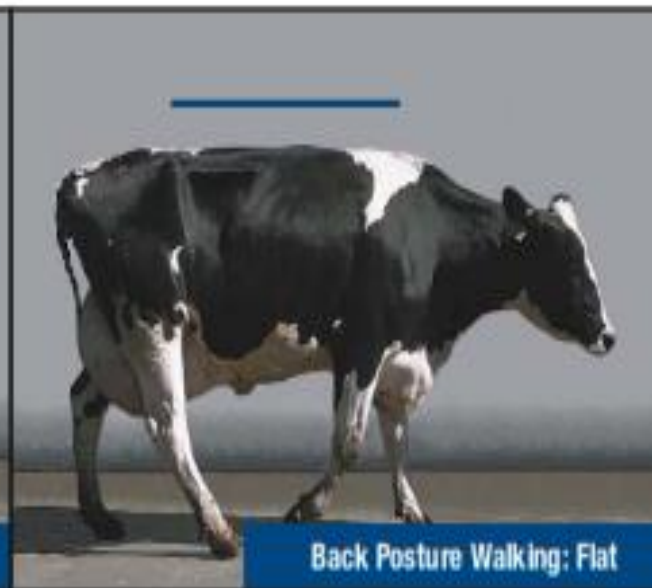
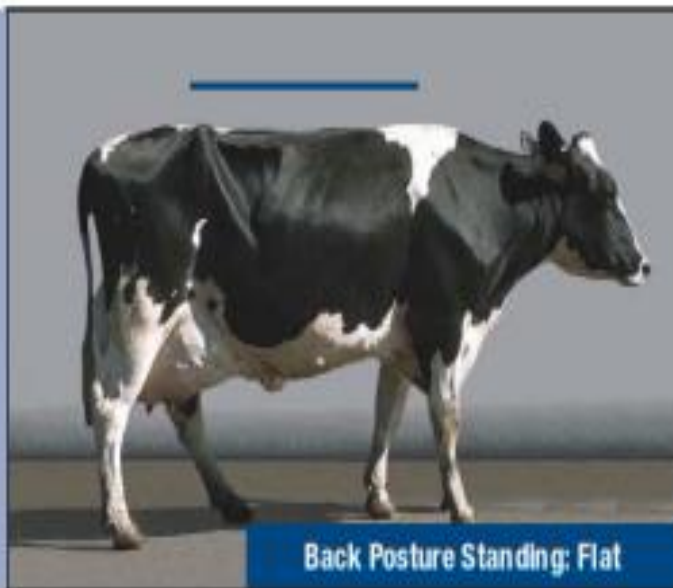
LOCOMOTION SCORE

1

Clinical Description:

NORMAL

Description: Stands and walks normally with a level back. Makes long confident strides.



LOCOMOTION SCORE

2

Clinical Description:

MILDLY LAME

Description: Stands with flat back, but arches when walks. Gait is slightly abnormal.



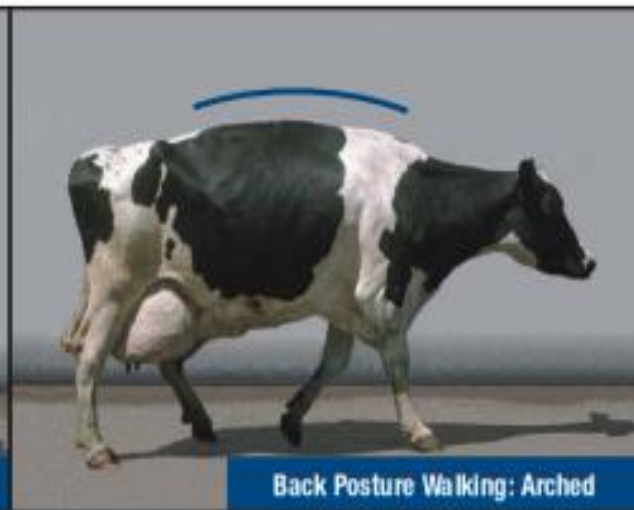
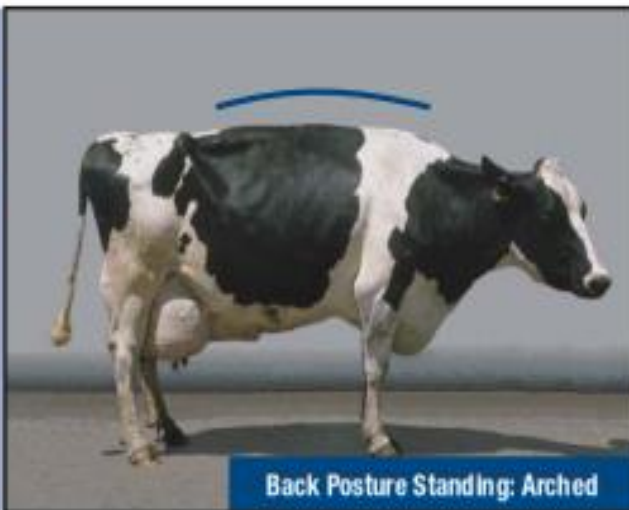
LOCOMOTION SCORE

3

Clinical Description:

MODERATELY LAME

Description: Stands and walks with an arched back and short strides with one or more legs. Slight sinking of dew-claws in limb opposite to the affected limb may be evident.



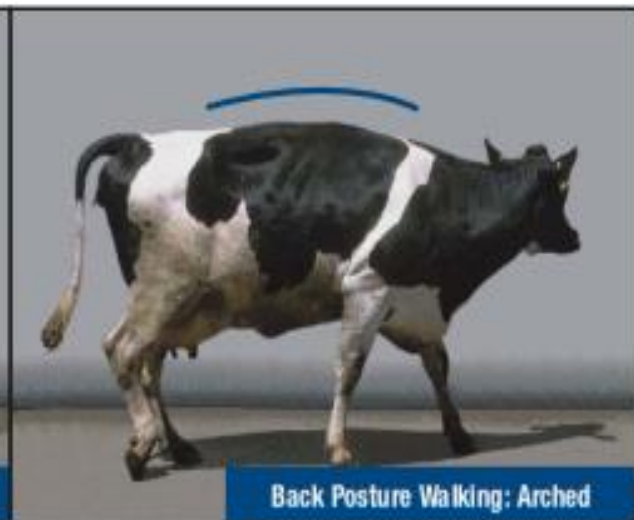
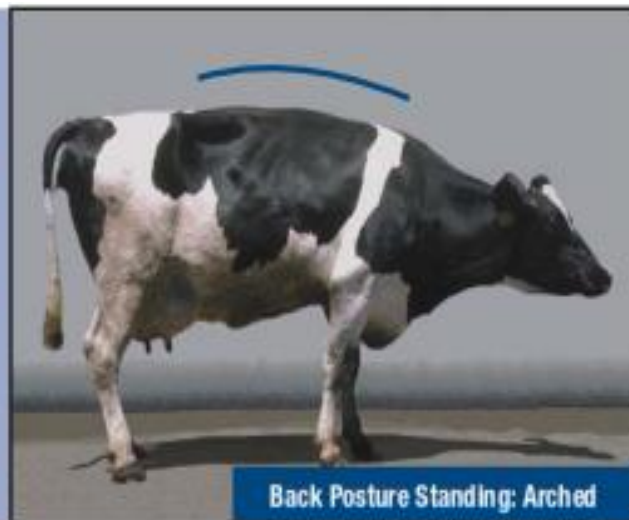
LOCOMOTION SCORE

4

Clinical Description:

LAME

Description: Arched back standing and walking. Favouring one or more limbs but can still bear some weight on them. Sinking of the dew-claws is evident in the limb opposite to the affected limb.



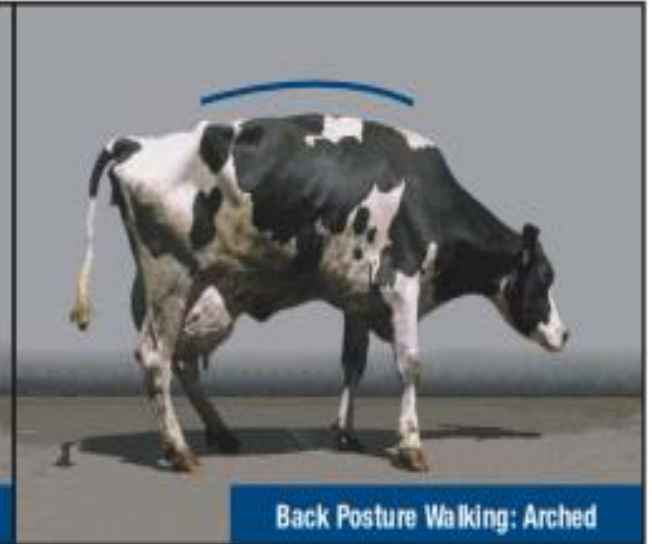
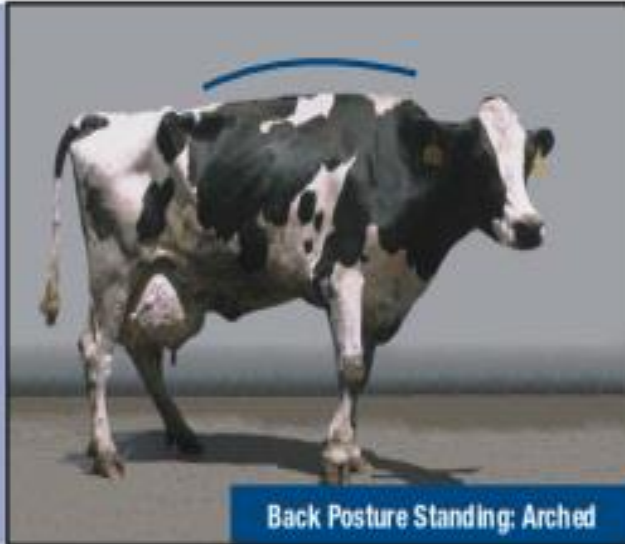
LOCOMOTION SCORE

5

Clinical Description:

SEVERELY LAME

Description: Pronounced arching of back. Reluctant to move, with almost complete weight transfer off the affected limb.



* Adapted from Sprecher, D.J.; Hostetler, D.E.; Kaneene, J.B. 1997. *Theriogenology* 47:1178-1187 and contribution from Cook, N.B, University of Wisconsin.

LOCOMOTION SCORE 1
Clinical Description:
NORMAL
Description: Stands and walks normally with a level back. Makes long confident strides.



LOCOMOTION SCORE 2
Clinical Description:
MILDLY LAME
Description: Stands with flat back, but arches when walks. Gait is slightly abnormal.



LOCOMOTION SCORE 3
Clinical Description:
MODERATELY LAME
Description: Stands and walks with an arched back and short strides with one or more legs. Slight sinking of dew-claws in limb opposite to the affected limb may be evident.



LOCOMOTION SCORE 4
Clinical Description:
LAME
Description: Arched back standing and walking. Favouring one or more limbs but can still bear some weight on them. Sinking of the dew-claws is evident in the limb opposite to the affected limb.



LOCOMOTION SCORE 5
Clinical Description:
SEVERELY LAME
Description: Pronounced arching of back. Reluctant to move, with almost complete weight transfer off the affected limb.



Dairy Cattle Locomotion Scores and Descriptions

Locomotion Score	Clinical Description	Description
1	Normal	Stands and walks normally with a level back. Makes long confident strides.
2	Mildly Lamé	Stands with flat back, but arches when walks. Gait is slightly abnormal.
3	Moderately Lamé	Stands and walks with an arched back and short strides with one or more legs. Slight sinking of dew-claws in limb opposite to the affected limb may be evident.
4	Lamé	Arched back standing and walking. Favoring one or more limbs but can still bear some weight on them. Sinking of the dew-claws is evident in the limb opposite to the affected limb.
5	Severely Lamé	Pronounced arching of back. Reluctant to move, with almost complete weight transfer off the affected limb.

Influence of lying Time



A cow should spend around 12 hours each day lying down.

- Must be provided with Proper flooring and enough space to lye down and move around.
- Cows stand while milking, eating feed
- Continuous standing in one place in restricted area – Improper hoof formation and pressure results in hoof injury.
- Overcrowding and improper flooring results in hoof injury.
- Loose housing immediate after calving will improve milk yield and decrease occurrence of lameness.



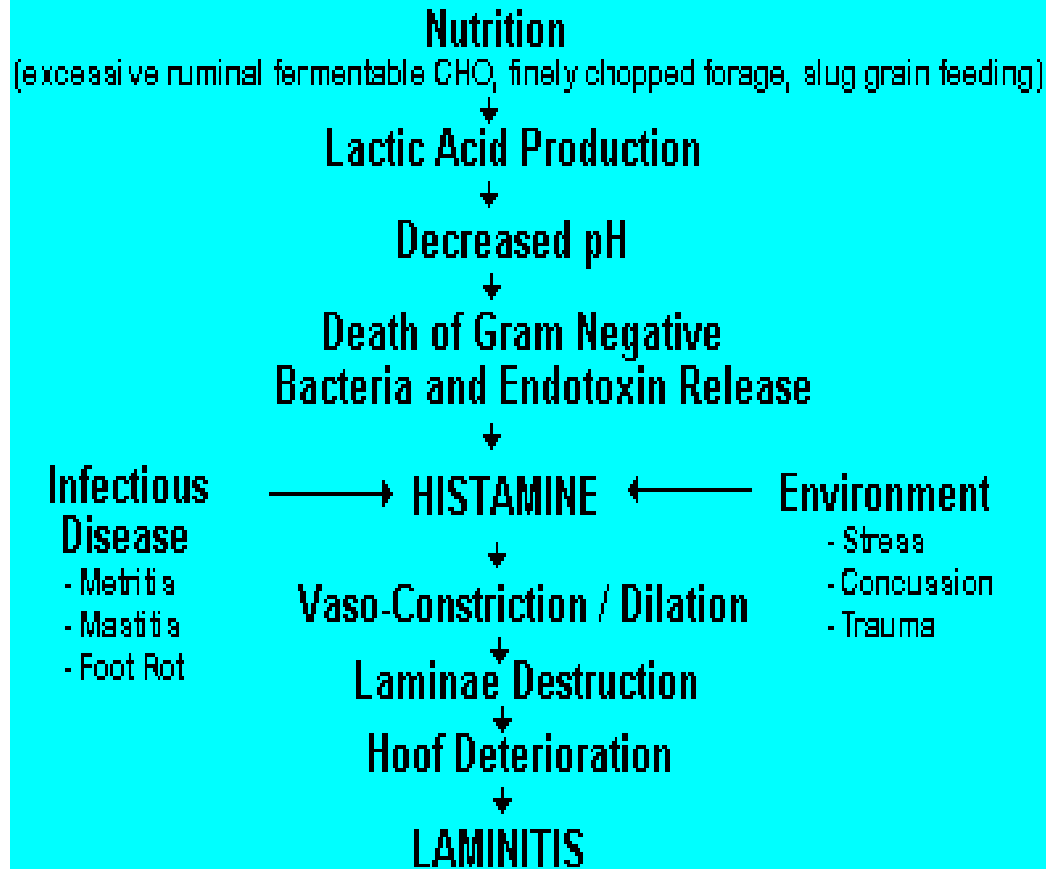
Just once I'd like to sleep lying down.

NEW: COWS COULD HAVE SLEEP PROBLEMS

EVSH

Laminitis: Causes and Sequence of Events

Histamine Theory



Ruminal acidosis can be detected by

- Loose feces
- increased incidences of digestive disturbances
- poor rumination
- Low butter fat
- weight loss in early lactation
- sweaty coat

Figure 5. Relationship between nutrition, disease, and environment on the development of laminitis (31).

Nutritional Management:

Avoid dietary upsets that disrupt the corium and lead to excess slurry by ensuring:

- Correct concentrate to fibre ratio
- Adequate long fibre in the ration
- Steady increase in concentrate intakes after calving
- Consideration is given to supplementation of transition rations based on their dietary cation-anion balance (DCAB)
- Supplements such as biotin are provided, where necessary, to optimise hoof strength



Dietary changes

- High concentrate and low fibre diet – Rumen acidosis – laminitis
- Deficiency of zinc , sulphur , amino acids and biotin

Floor surfaces and Wet conditions and hygiene:

- Too rough, broken concrete surfaces leads to hoof injury.
- Very slippery surfaces cause more pressure on particular hoof portion while balancing.
- Sole becomes soft – more chances of hoof injury and infection



Floor surfaces and Foot hygiene

Cows should be provided with good, non-slip, but trauma-free, Dry surfaces by ensuring:

- Attention to rough and broken concrete
- Grooving of concrete where surfaces are slippery
- Animals are allowed to walk at their own pace
- Adequate drainage and ventilation of buildings
- Regular (ideally daily) disinfectant foot bathing with zinc sulphate, preferably starting with the transition cows
- Regular foot trimming to avoid injury due to overgrown hooves.

