

Bovine Calving Management: Impact of Dystocia on Dairy Calves and Cows

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Dystocia is defined as an abnormal or difficult birth at any stage of labor. Dystocia has a direct negative impact on calves (e.g., prolonged hypoxia, significant acidosis, vigor, increased stillborn calves, etc.) and dams (e.g., trauma, paresis, metritis, endometritis, etc.). Stillbirth is defined as a calf born dead or dead within 24 hours after birth.¹ Based on the degree of difficulty/assistance during calving, dystocia can be classified in five categories (1-5 scores): 1 = births without assistance, 2 = required some intervention by one person, 3 = required assistance of 2 or more people, 4 = required mechanical extraction, and 5 = required surgical procedure.¹ The main causes of dystocia are: 1) fetal-maternal size mismatch, 2) fetal malpresentation, and 3) dam related causes (e.g., uterine torsion). The fetal-maternal size mismatch (e.g., bull calves) is the most frequent cause of dystocia in primiparus dams, while fetal malpresentation and/or maternal related causes is the most frequent causes of dystocia in multiparus dairy cows. Overall, the frequency of dystocia (required assistance during calving) is higher in primiparus (19%) than multiparus cows (11%; Figure 1).² However, in some dairy herds and especially in primiparus dams, more than half (51.2%) of the calves required assistance during calving.¹

Severe dystocia is associated with increased risk of stillbirths, calves' morbidity (e.g., respiratory diseases) and deaths within 30 days post-calving.¹ Additionally, postpartum cows subjected to severe dystocia are at increased risk of uterine diseases (e.g., retained fetal membranes, metritis, and endometritis) and are exposed to contamination of the uterus by recognized uterine pathogens (e.g., *E. coli*, *A. pyogenes*) that are associated with ovarian dysfunction (e.g., smaller follicle size, lower plasma estradiol and prolonged luteal phase).⁴

Recognizing the signs of calving: The normal calving process is classified into three stages, and recognizing the stages is critical for a successful outcome (for the dam and the calf).

-**Stage I:** is characterized by dilation of the birth canal and cervix, and initiation of uterine contraction. Usually, the cow/heifer is off-feed and appears restless. This stage lasts for approximately 2 to 6 hours in mature cows, but it may be longer in heifers.

-**Stage II:** is characterized by the appearance of the amniotic sac (or water bag), uterine and abdominal contractions are evident, and this stage ends with the expulsion of the calf (or calves). This stage lasts for approximately 2 hours in cows and up to 4 hours in first calving heifers. It is critical that good progress is observed during this stage to determine whether an intervention is required. If there is abdominal contraction but no calving progress after 1 hour of the water bag appearance, intervention is required.

-**Stage III:** is characterized by the expulsion of the fetal membranes (placenta). Usually, the fetal membranes are expelled within 3 hours of delivery. If the fetal membranes are not expelled within 8 to 12 hours post-calving, treatment might be needed.

When to intervene: Being able to recognize the calving stages (and signs) in a timely manner is critical for positive outcomes. Generally, once the water bag appears (or is broken), birth should occur within 2 hours for mature cows (and longer for heifers; ~2 to 4 hours). As a guideline, the cow/heifer needs intervention when there is not calving progress within 1 hour after the water bag's appearance. The frequency of observations (approximately every 2 to 3 hours for first calving heifers and 4 to 5 hours for adult cows) is critical to determine when to start counting.

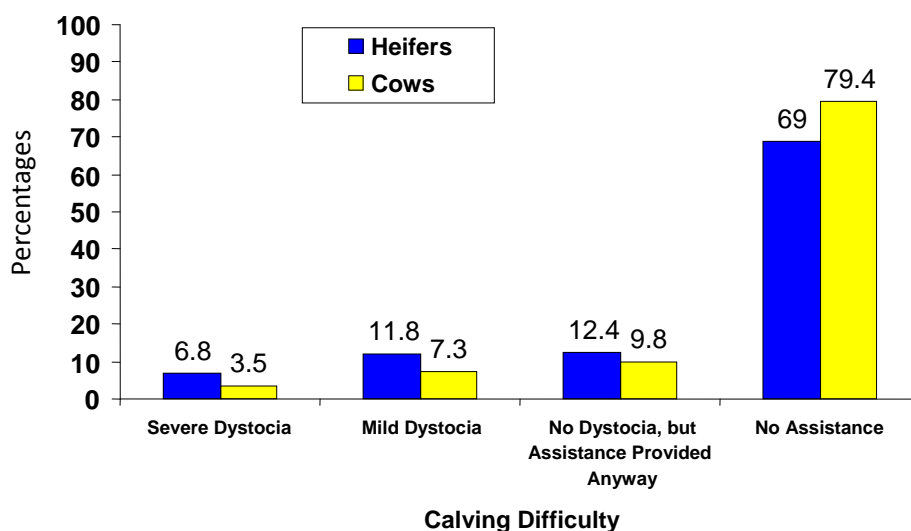
Guidelines for calving assistance:

- Hygiene should be a top priority. Wash the perineal region with soap and water, and use obstetrical lubricant and long sleeves.
- Check the size of the fetus in relation to the size of the birth canal (dam). Call your veterinarian if there is no progress within 30 minutes after your intervention.
- Use clean and sanitized obstetric chains (free of debris/dirt) and correct any malpresentation and/or malposition before pulling.
- For first calving heifers, once the nose/feet of the calf are out: help finish.
- For backward presentation: help out.
- Have written calving protocols for your dairy personnel (e.i., frequency of observations, when/how it is appropriate to intervene, etc.).

Implications: Losses due to dystocia can be very costly to dairy producers through an increased number of stillbirths and injury to dams. However, the impact of dystocia also compromises reproductive performance of lactating dairy cows, leading to increased uterine diseases, ovarian dysfunction, and decreased fertility. Therefore, education of dystocia management (and its effects on calves and dams) to dairy personnel should be a priority.

For more information, please consult with your local veterinarian or visit our web site (<http://cvm.osu.edu/5997.htm>).

Figure 1: Frequency of Dystocia in Heifers and Cows



References

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