



Lame cows improve when given access to pasture

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Lameness is a common and costly disorder affecting dairy cattle. Freestall housing systems are designed for ease of management but are also associated with a greater risk of hoof injury and disease leading to lameness. For example, the use of concrete floors, zero-grazing and uncomfortable stalls are all well known risk factors.

Pasture rearing can improve hoof health, perhaps due to the change in the physical environment or to associated factors such as change in diet. Fewer cows become lame during the grazing season and cows kept outdoors are less prone to claw disorders than those that are housed indoors. Despite these advantages in hoof health, switching from indoor housing to pasture is not a practical option for many producers. Providing a rest period on pasture for lame cows may be a more practical option.

The primary objective of our study was to test whether a relatively short period on pasture would help lame cows recover. Time on pasture may reduce lameness by providing access to more comfortable standing and lying surfaces.

The study tested whether providing lame cows a four week period of pasture would improve gait. Eighteen groups, each of four lactating cows, were either kept in the same freestall barn or moved to pasture. The pasture was 24 hectares of "Profile" orchard grass and *Festulium* seeded three years earlier.

Freestall housed cows were kept in pens that had six metres of accessible alley space and one stall per cow filled with 40 cm of washed river sand. Cross-over alleys were scraped daily and all other alleys were cleaned six times daily. All flooring outside the stall area was concrete.



Figure 1. Cows on pasture at the UBC Dairy Centre. This study asked if lame cows benefit from access to pasture.

Cows were gait scored before the experiment using a scoring system from 1 to 5. A sound cow showing a flat back, steady head carriage, hind hooves falling in or near the track left by the front hooves, joints flexing freely, symmetrical gait and all legs seeming to bear weight equally was scored as 1. Severely lame cows were scored as 5. Gait was assessed at the start of the experiment and then weekly for four weeks immediately after the morning milking when cows were walking down the return alley.

To assess how much time cows spent lying down, electronic data loggers were attached to the hind leg of each cow. These data loggers recorded each time each cow lay down, providing a very accurate and continuous measure of total time lying down and the number of lying episodes during each day.

Gait scores stayed the same or increased slightly for those cows that stayed inside the freestall barn. For this group the average score increased from 3 to 3.2 over the four week study (a score of 3 or more is considered clinically lame). In contrast, gait improved rapidly for those cows that were moved to pasture. These cows also started the study with an average gait score of 3, but this score declined close to 2 after four weeks on pasture. In fact, the greatest improvements came during the first two weeks that cows were put outside.

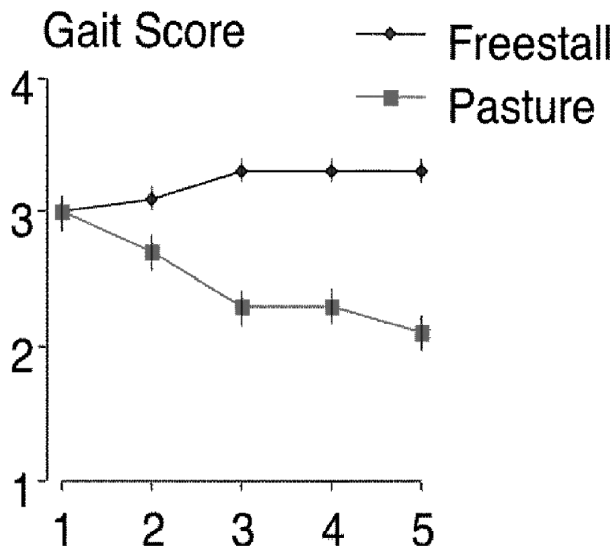


Figure 2. Changes in gait score for dairy cows kept either on pasture or in a freestall barn.

Improvements in gait were partly because of changes in joint stiffness. Concrete flooring, especially when covered with manure slurry, may not provide sufficient friction, causing slipping and resulting in cows walking with a “stiff” gait. Improvements among cows on pasture may also have been caused by increased exercise. Pastured cows are required to spend more time walking because of grazing and distance from the parlor.

We had expected that cows on pasture would spend more time lying down, but the opposite was true - cows on pasture actually spent less time lying down (10.9 h/d) than cows kept indoors (12.3 h/d). Interestingly, cows on pasture lay down and stood up more often than cows indoors (15.3 vs. 12.2 times per day), suggesting that these transitions are constrained by the stall structure.

The reduced lying time on pasture may have been because cows preferred to spend time standing on this surface. Freestall barns are typically designed to provide a suitable place for cows to lie down, and to drink and eat, but little thought has gone into providing cows a comfortable place to stand. New research is now needed to develop comfortable standing surfaces for cows housed indoors. We predict that providing cows a comfortable, dry place to stand would reduce lameness in freestall-housed cows.

A range of factors can affect how cows respond to both pasture and indoor housing. Pasture rearing also exposes cows to a change in diet - this too may have affected the cows. Previous research has shown that housing conditions and diet can affect hoof health.

The positive effects on hoof health of longer-term pasture rearing are well documented, but this study shows that lame cows can improve rapidly during a short period on pasture. UBC researchers are now working to develop indoor housing systems to provide similar benefits for lame cows.

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***Best Wishes for a Wonderful
Christmas and a Prosperous
New Year from the Faculty &
Staff of the UBC Dairy Centre***