



PAIN CAUSED BY PARTURITION IN SOWS

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Farrowing is a painful and risky process for both the sow and the newborn piglets. Difficult farrowing (dystocia) is associated with severe pain resulting from prolonged farrowing or assisted extraction. Pain caused by farrowing should receive more attention. Optimizing the parturition process will reduce its negative consequences on the welfare and productivity of sows.

FARROWING: A PAINFUL AND STRESSFUL PROCESS

It is generally accepted that giving birth causes acute pain in all species, including sows. According to a survey to pig farmers and veterinarians in the UK, when asked to score (on a scale from 0 to 10) the painfulness of a variety of conditions, farrowing was given a score of 4. This was increased up to 7 when farrowing requires manual assistance. Only a broken leg and infectious mastitis were scored as being more painful than difficult farrowing.

Several factors such as **parturition difficulty** and **sow parity** may modify the degree of pain caused by parturition. Insufficient dilatation of the birth canal or a low frequency and intensity of uterine contractions are the main causes of discomfort and pain around parturition.

In general, dystocia is more likely to happen in gilts than in multiparous sows. Apart from the lack of experience of the dams at first parturition, gilts usually have longer parturitions and the effort is usually greater than in multiparous sows.

ASSESSMENT OF PAIN CAUSED BY FARROWING

Farrowing leads to changes in different indicators of pain, with dystocic farrowing having a greater effect than normal farrowing.

Acute phase proteins, such as C-reactive protein (CRP) and Haptoglobin (Hp) are physiological markers of inflammation in pigs. High levels of CRP and Hp have been reported in sows until one week after farrowing. This may be linked to the inflammation process of the reproductive tract. Furthermore, gilts have higher values of Hp than multiparous sows.

Farrowing causes physiological stress. The increase in serum **cortisol** in the post-partum period in sows is thought to be a consequence of two factors: first, pain is always accompanied by a stress response, and second, any new or uncommon situation can trigger a stress response.

Behavioural changes are the most commonly used measures of pain caused by farrowing, as they are sensitive and non-invasive.

Generally, sows remain in lateral recumbency during the whole farrowing. Lying down in the same position throughout the deli-

“ Normal farrowing lasts 2.5h on average. Parturitions longer than 3h or 4h are considered dystocic and more painful. ”

Indicators of pain caused by farrowing in sows.

Behavioural indicators	Physiological and production indicators
Increased <ul style="list-style-type: none"> • Time standing and sitting • Posture changes • Forward movements of rear legs • Back arching • Pawing • Trembling • Tail flicking 	Increased <ul style="list-style-type: none"> • Heart and respiratory rate • Rectal temperature • Plasma concentration of acute phase proteins • Duration of farrowing • Number of stillborn and/or mummified foetuses
Decreased <ul style="list-style-type: none"> • Time in lateral recumbency 	Decreased <ul style="list-style-type: none"> • Feed intake • Viability of piglets

very of the whole litter is an important feature of farrowing. With the sow lying quietly, piglets may have ready access to the udder very early life. Pain caused by farrowing increases total time spent standing or sitting and the number of position changes during the day before and the day of farrowing. Despite of this, as lactation advances, an increase in total standing time indicates that the sow is recovering from the farrowing process. Active sows at the beginning of lactation seems to be more “aware” of piglets and drink more water, which results in more milk and a better performance of piglets.

Specific behavioural pain indicators have been recently described in sows on the day of farrowing and the day after. Those behaviours are absent or rare in the pre-farrowing period. They include the following: forward movements of the rear legs, back arching, pawing, trembling and tail flicking. Back arching seems to be related with uterine contractions, whereas tail flicking is strongly associated with imminent piglet expulsion. Trembling could be indicative of the cumulative effects of inflammation, pain and fatigue as parturition progresses.

The behaviour of the newborn piglets reflects the difficulty of farrowing. In sows, a high percentage of piglets born with a low viability is associated with a difficult farrowing.

CONSEQUENCES OF PAIN CAUSED BY FARROWING

Injury and inflammation associated with farrowing (especially in dystocia) may have negative effects on welfare and productivity. For example, pain at farrowing may reduce feed intake and, as a result, increase weight loss and reduce milk production in sows. Dystocia increases the risk of several conditions including endometritis, vulvar discharge, retained placenta, mastitis-metritis-agalactia syndrome, impaired fertility and early culling.

Pain and stress caused by farrowing inhibits the release of oxytocin, which may result in prolonged farrowing, reduced colostrum and milk ejection and altered maternal behaviour. Those alterations may result in reduced piglet growth and increased pre-weaning mortality.

PREVENTION – REDUCTION OF DIFFICULTIES AT FARROWING

It is critical to evaluate the welfare of sows in the farrowing room (evaluation of the duration of farrowing, number of sows that need assistance, piglet viability and post farrowing complications, such as retained placenta, vulvar discharges, and dysgalactia). If problems are detected, a concerted effort should include optimal sow feeding and nutrition, careful condition scoring to avoid overweight sows and management procedures once sows are being prepared for farrowing. In addition, careful lameness evaluation and rapid treatment can help reduce problems with farrowing.

TREATMENT OF PAIN CAUSED BY FARROWING

Non-steroidal anti-inflammatory drugs (NSAIDs) are licensed to treat conditions involving pain and inflammation in pigs, which could be experienced around farrowing. Nowadays, NSAIDs are used to treat Mastitis-Metritis-Agalactia syndrome (MMA or PPDS) and post-farrowing lethargy, where sows are off their feed. Farmers and veterinarians agree in that pigs recover better with the use of pain relief.

Recent research suggests that the administration of NSAIDs at farrowing is beneficial to sow welfare and productivity. Treatment with meloxicam has been shown to reduce time spent lying passively after farrowing. Reduction in lying time after farrowing indicates that sows recover faster from farrowing and may in turn reduce the risk of skin lesions caused by inadequate flooring.

NSAIDs also produce benefits for piglet welfare and performance. In a large-scale study on commercial farms, pre-weaning piglet mortality was reduced in sows given NSAIDs. Recent studies showed that weight at weaning in piglets born from sows treated with NSAIDs was between 200 and 400 g higher than in the control group. In addition, it has been shown that oral administration of meloxicam to multiparous sows increases the concentration of Immunoglobulin G in the serum of piglets and enhances their pre-weaning growth. As piglets are born with an immature immune system, the acquisition of immunoglobulin from colostrum is fundamentally important.

SUMMARY

Farrowing is associated with pain and stress that can alter normal processes and trigger abnormal maternal behaviors, with negative consequences for piglet growth and survival. NSAIDs administered at farrowing are useful to mitigate pain in sows and reduce negative consequences on welfare and productivity.

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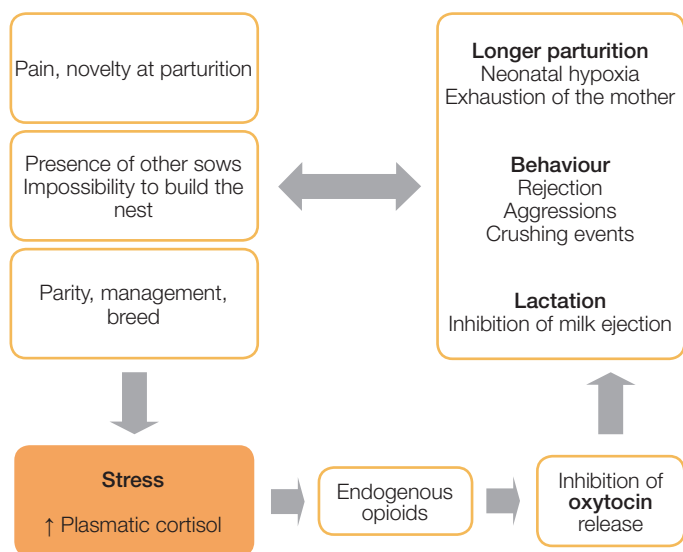


Figure 1. Main consequences of pain and stress caused by farrowing in sows.



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