



The effect of overgrown claws on behaviour and claw abnormalities of sows in farrowing crates



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ARTICLE INFO

Article history:

Accepted 1 March 2015

Available online 14 March 2015

Keywords:

Lactating sows

Lying down behaviour

Overgrown claws

Postural behaviour

ABSTRACT

The objective of this study was to evaluate the effect of overgrowth of the weight bearing claws on the behaviour of sows in farrowing crates. The study used 24 multiparous lactating sows, 13 with overgrown (OG) rear claws and 11 controls. Sows were video recorded continuously from approximately 12 h before farrowing in order to capture postural behaviour for 6 h prior to the birth of the first piglet. An index of the proportion of time spent in different postures was calculated by sampling sow postural behaviour every 10 min. Lying down behaviour and sow behaviour while standing at feeding were directly observed during three feeding events within a week of farrowing, commencing approximately 10 min prior to feed delivery and terminating once the sows lay down. Data on time spent “only” standing, time spent feeding, number of slips and weight shifts per minute and latency, time and number of attempts to lie down, among others, were recorded during the direct observations. Additionally, all front and hind weight bearing claws were examined for claw abnormalities which were scored according to severity using a 4-point scale (0 = normal to 3 = severe) on the day of transfer to the farrowing crate (d110 of gestation) and after farrowing while the sows were lying down. Data were analysed using generalised linear mixed model equation methods in PROC GLIMMIX of SAS v9.3. Sows with overgrown claws (OG) had a higher score for erosion ($P < 0.05$) and corkscrew dew claws ($P < 0.05$) than control sows. Furthermore, OG sows had higher erosion scores in the rear claws ($P < 0.05$) compared to the control sows. There was no difference between control and OG sows in the time spent in the different postures prior to farrowing. On the first week after farrowing, OG sows spent less time feeding ($P < 0.05$), slipped ($P < 0.05$) and shifted weight ($P < 0.05$) between their hind feet more frequently while feeding than control sows. OG sows required more attempts to stand up to feed ($P < 0.05$) and had a shorter latency to lie down ($P < 0.01$) after feeding compared with control sows. Overgrowth of the rear claws was associated with increased scores for other types of claw abnormalities and more frequent slips while in the farrowing crate; suggesting that overgrown claws could have negative implications for sow welfare and piglet mortality.

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1. Introduction

Claw lesions are very common in sows with almost 100% of group housed and 80% of stall housed pregnant sows having at least one claw lesion (Gjein and Larssen, 1995; Anil et al., 2007; Enokida et al., 2011; Pluym et al., 2011; Grégoire et al., 2013; Calderón Díaz et al., 2014). One of the most common claw abnormalities observed in breeding herds is overgrown claws. KilBride et al. (2010) reported that 8.2% of lactating sows had overgrown weight bearing claws and Bonde et al. (2004) found that while 26% of lactating sows had long or overgrown claws, in 14% of these the overgrowth was limited to the accessory digits (range 5–28%). In a study of 3645 pregnant sows housed individually on 25 Irish farms, up to 26% of sows had mild to moderately overgrown weight bearing claws while almost 7% of sows had severely overgrown rear claws (Boyle, 1996). A recent Irish survey of pregnant sows in group housing systems on 68 farms revealed that 31% of sows were affected by overgrowth of the weight bearing claws (unpublished data). In spite of this high prevalence, little is known about the aetiology or effects of overgrown claws. While the findings of some studies support a relationship between overgrowth and housing sows on less abrasive substrates (e.g. straw; KilBride et al., 2010 or rubber; Calderón Díaz et al., 2013) this does not explain the high prevalence of overgrowth recorded in the aforementioned Irish surveys where all sows were kept on partially or fully slatted concrete flooring. Overgrowth of both the weight bearing claws and accessory digits can affect sow lying (Bonde et al., 2004) and feeding (Fitzgerald et al., 2012) behaviour which could have negative implications for sow welfare. Furthermore, although KilBride et al. (2010) found a relationship between toe erosion and toe overgrowth little else is known about the relationship between overgrown claws and other claw lesions. The objective of this study was to evaluate the association between overgrown claws and postural, standing up and lying down behaviour and with behaviours related to discomfort such as slipping and weight shifting in the farrowing crate. A secondary objective was to evaluate the association between overgrown claws and other claw abnormalities.

2. Materials and methods

2.1. Ethical statement

This trial was conducted in accordance with the International Guiding Principles for Biomedical Research Involving Animals as issued by the Council for the International Organisations of Medical Sciences in 1985. No invasive measures were used and thus the experiment did not require licensing under the European Communities (Amendment of Cruelty to Animals Act, 1876) Regulations 1994.

2.2. Experimental design and husbandry

The study was conducted on the experimental farm of the Pig Development Department, Teagasc Animal and Grassland Research and Innovation Centre, Moorepark, Fermoy, Co. Cork, Ireland during the spring of 1996. Multiparous Large White × Landrace sows that were due to farrow within the spring months were inspected for overgrowth of the weight bearing claws (OG) on the hind limbs. Sows with what was subjectively considered moderate to severe overgrowth were selected for inclusion in the study. These were matched with sows with normal weight bearing claws and with similar expected farrowing dates and parity (i.e. control sows). The length of both lateral claws on the rear feet was measured along the dorsal wall from just below the coronary band to the tip of the 'toe' (see Fig. 1) using callipers. Thirteen sows with overgrown rear claws (average rear claw length = 68 ± 12.6 mm; average parity 4.7; mean BW = 256 kg) and 11 control sows (average rear claw length = 48 ± 5.2 mm; parity average 4.5; mean BW = 259 kg) were used in the study. During gestation, sows were housed individually in stalls (0.65 m × 2.0 m) with solid concrete flooring in the anterior 2/3 and concrete slatted flooring in the posterior 1/3 of the stall. On day 110 of gestation, sows were transferred to farrowing crates where they remained until weaning at 28 days post-partum. Farrowing facilities consisted of 8 mechanically ventilated, thermostatically controlled rooms, each containing 10 farrowing pens. Each farrowing room was used consecutively as it became available.

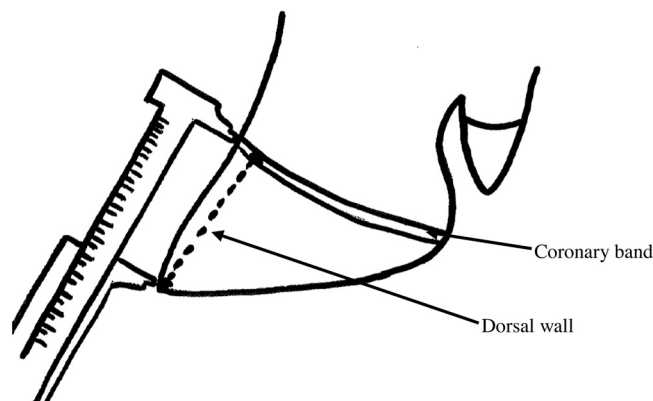


Fig. 1. Claw length measurement along the dorsal wall from just below the coronary band to the tip of the 'toe' using a calliper.

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