The effect of providing a greater freedom of movement through periodic exercise on the welfare and stress physiology of stall-housed gestating sows and on piglet behaviour

M Tokareva*†, JA Brown‡, DJ MacPhee§, DM Janz§ and YM Seddon†

† Department of Large Animal Clinical Sciences, University of Saskatchewan, Western College of Veterinary Medicine, 52 Campus Drive, Saskatoon, Saskatchewan S7N 5B4, Canada
‡ Prairie Swine Centre Inc, Box 21057, 2105 8th Street East, Saskatoon, Saskatchewan S7H 5N9, Canada
§ Department of Veterinary Biomedical Sciences, University of Saskatchewan, Western College of Veterinary Medicine, 52 Campus Drive, Saskatoon, Saskatchewan S7N 5B4, Canada
* Contact for correspondence: mariia.tokareva@usask.ca

Abstract

In Canada, the 2014 Code of Practice for the Care and Handling of Pigs proposed the continued operation of existing stall barns after 2024 on condition that bred sows be given access to periodic exercise. Therefore, this study evaluated the effects of periodic exercise on sow welfare. Sows (n = 180) were assigned to one of three treatments: stall-housed (Control: C); stall-housed and exercised weekly for 10 min (Exercise: E); and group-housed (Group: G). Sow postures and stereotypies were recorded once per week in early, mid and late gestation before (AM) and after (PM) exercise. Female piglets (n = 168 from C, E and G sows) underwent isolation and novel object tests at 19–22 days of age. Postures differed by treatment in AM with G sows lying more and sitting less than C and E sows, which did not differ. In PM, E sows sat more than G sows, with C sows being intermediate. In early gestation, G sows performed fewer stereotypies than E sows, with C sows being intermediate. In mid gestation, G sows performed fewer stereotypies than C and E sows, which did not differ. Piglets from C sows were more active in the novel object test than E and G piglets, which did not differ. Group housing improved sow comfort (indicated by postures) and reduced sow stress (indicated by stereotypies), but periodic exercise did not. Decreased activity level in piglets from sows given greater freedom of movement indicates that gestation housing can influence the behaviour of offspring.

Keywords: animal welfare, gestation stall, hair cortisol, periodic movement, pig, prenatal stress

Introduction

Confinement of sows in gestation stalls remains one of the major welfare concerns in the pork industry (Kim et al 2016). Gestation stalls are negatively perceived by society due to the restriction of sow movement, as well as foraging and social behaviour for prolonged periods of time (Tonsor et al 2009). Due to these circumstances, gestation stalls are being actively phased out around the world and replaced by group gestation systems. Previous studies indicate that stall-housed sows are motivated to leave the stall, and when out of the stall, they show a rebound response to prolonged confinement, spending a greater proportion of time in locomotion during their first opportunity to leave the stall in comparison to two subsequent consecutive opportunities within the same testing session (Tokareva et al 2021). These findings indicate the presence of an intrinsic behavioural need for movement, and it is likely considered that accommodating this need would lead to an improvement in sow welfare (Stolba & Wood-Gush 1984).