The Impact of Providing Periodic Exercise on the Welfare of Stall-Housed Gestating Sows

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BACKGROUND

The 2014 Canadian Code of Practice for the Care and Handling of Pigs proposed that as of:

- **July 2024:** existing stall barns may continue to operate if mated gilts and sows are given opportunities for greater freedom of movement.
- The public comment period on this proposition ended on November 19, 2020.
- Whether providing sows with periodic exercise brings any benefits to sow welfare, through reducing stress of closed confinement and improving comfort, remains unknown.

MATERIALS AND METHODS

- **Determine** the effects of low-level periodic exercise in stall-housed gestating sows on **sow welfare** through evaluation of **sow behaviour** and **piglet stress response.**

OBJECTIVE

Animals: bred sows (n=180, parity 0-7).

Treatments:

i) Control (C): Sows stall-housed throughout gestation,
ii) Exercise (E): Stall-housed sows given exercise (10 mins walking around gestation room), once per week,
iii) Group (G): Sows housed in groups from insemination to farrowing.

Measures:

Sow behaviour:

- Recorded in early (week 2), mid (week 10) and late (week 15) gestation, on the days of exercise.

- Postures (lying, standing, sitting):
- Recorded every 10 mins for 2 hrs before exercise (AM) and for 1.5 hrs post exercise (PM).

- Stereotypies:
- Live scored at 2-min intervals for 1 hr in AM and PM.

Prenatal stress measures:

- Female piglets (n=168 from 17 C sows, 20 E sows and 20 G sows) underwent novelty and isolation tests on day 19-22 after birth.

RESULTS

Postures:

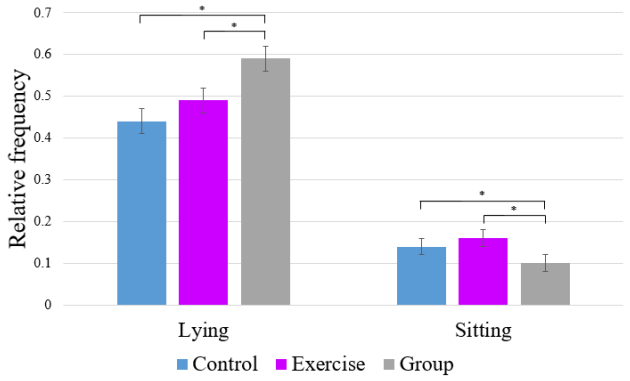


Fig. 1. *Relative frequency (mean±SEM) of lying and sitting in AM for sows stall-housed throughout the gestation (Control, n=53), stall-housed sows exercised for 10 minutes once per week (Exercise, n=56) and sows housed in groups from insemination to farrowing (Group, n=58). Brackets connect treatments with significant differences. * P <0.05.*

- **In AM**, G sows lay 27% more and sat 33% less, than C and E sows, which did not differ (P<0.05; **Fig. 1**).
- **In PM**, E sows sat more than C and G sows, and C sows sat sat twice as much as G sows (C: 0.08±0.01, E: 0.12±0.01, G: 0.04±0.01, P<0.05).

Stereotypies:

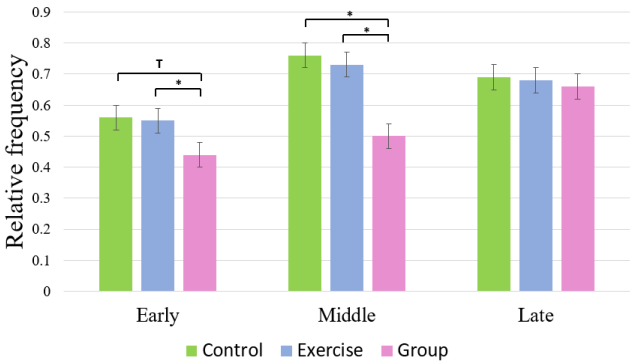


Fig. 2. *Relative frequency (mean±SEM) of performing stereotypies in AM for sows stall-housed throughout the gestation (Control, n=53), stall-housed sows exercised for 10 minutes once per week (Exercise, n=56) and sows housed in groups from insemination to farrowing (Group, n=58) in early, mid and late gestation. Brackets connect treatments with significant differences.* P <0.05; T: Tendency, P= 0.05.*

- **In early gestation**, G sows performed 20% fewer stereotypies than E sows, with C sows being intermediate (P<0.05).
- **In mid gestation**, G sows performed 33% fewer stereotypies than C and E sows, which did not differ (P<0.05; **Fig. 2**).

Piglet testing:

- Control piglets responded to a **novelty test** with 27% higher activity than E and G piglets, which did not differ (C: 23.10±2.21, E: 17.64±2.17, G: 18.67±2.16, P<0.05).

DISCUSSION

- **Periodic exercise did not improve sow comfort** (as indicated by postures) and **did not reduce the stress coping response** (as indicated by stereotypy performance), in comparison to stall housing throughout gestation.
- Sows in **group housing** demonstrated behaviours indicative of **greater comfort and reduced stress**.
- Piglet responses indicate that the **lack of access to greater freedom of movement** in stall-housed sows resulted in a **more proactive stress response in offspring**.

CONCLUSIONS /TAKE HOME MESSAGE

- Providing **periodic exercise** for 10 mins once per week **does not produce measurable benefits for sow welfare**, but does influence the stress coping response in offspring.
- **Periodic exercising is not advisable**, given the low returns for sow welfare, and converting to **group housing is a preferable option** for providing a greater freedom of movement, based on our results.

ACKNOWLEDGEMENTS

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