

Prenatal stress models in pigs

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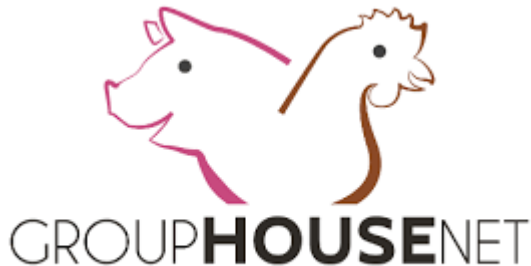
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In 5 mins

- Brief overview of experimental models
 - (continuation of yesterday)
- Considerations
- Further suggested reading

Acknowledgements:





“If the start of growth is measured from the time of conception rather than from the time of birth, we find that a considerable proportion of the time taken to reach market weight is spent in the uterus” Howard Swatland

Social stress

- Gilts (1st time mothers) introduced in group of older (bigger) sows
- Sows can be fierce in establishing dominance > attacks, bullying, displaced from feed
- Risk of death



Artificial stress

- ACTH or cortisol
- Controlled, but does it really mimic natural conditions?
- What happens with the predictive adaptive response?



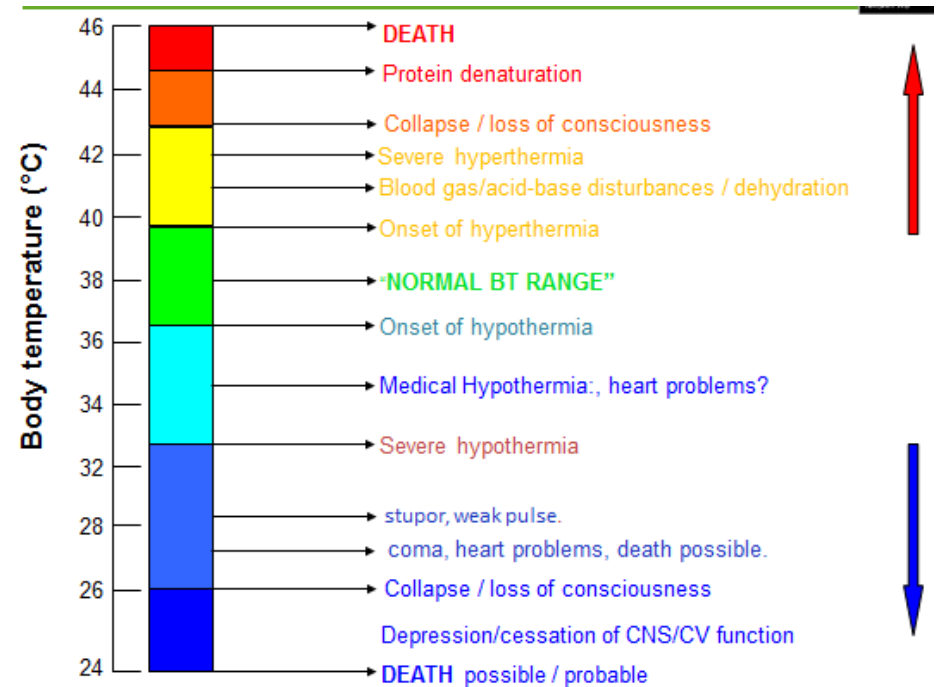
Restraint / handling stress

- Mainly repeated snaring
- Can be in combination with artificial challenge to administer substance



Heat/cold stress

- Pigs get easily heat/cold stressed
- Impact on physiology (metabolism, energy expenditure) and behaviour (apathy)



Considerations

- Pigs are very sensitive to social and environmental stress
- We largely determine that environment
- Prenatal stress: take into account that sows maybe already (chronically) stressed



Further suggested reading



- **Otten, W., Kanitz, E., & Tuchscherer, M. (2015). The impact of pre-natal stress on offspring development in pigs. *The Journal of Agricultural Science*, 153(5), 907-919.**
- Rutherford, K. M., Piastowska-Ciesielska, A., Donald, R. D., Robson, S. K., Ison, S. H., Jarvis, S., ... & Lawrence, A. B. (2014). Prenatal stress produces anxiety prone female offspring and impaired maternal behaviour in the domestic pig. *Physiology & behavior*, 129, 255-264.
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- Boddicker, R. L., Seibert, J. T., Johnson, J. S., Pearce, S. C., Selsby, J. T., Gabler, N. K., ... & Ross, J. W. (2014). Gestational heat stress alters postnatal offspring body composition indices and metabolic parameters in pigs. *PLoS One*, 9(11), e110859.



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