AARHUS UNIVERSITY
DEPARTMENT OF ANIMAL SCIENCE

DANISH MEAT RESEARCH INSTITUTE

Exsanguination blood lactate as an indicator of pre-slaughter welfare in finishing pigs

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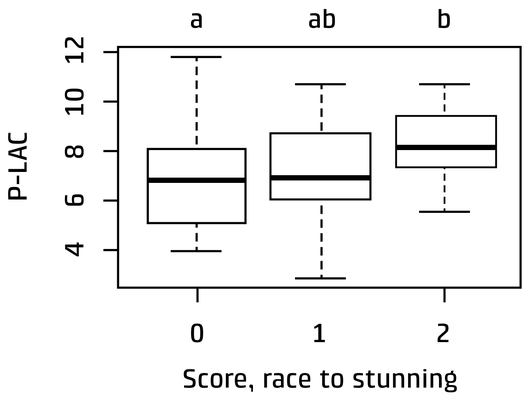
INTRODUCTION

Pre-slaughter handling constitutes novel and potentially stressful experiences for pigs. The concentration of lactate in the exsanguination blood may indicate that finishing pigs have been exposed to stressful events prior to slaughter. The aim of the present study was to investigate the relationship between ante mortem observations and the plasma concentration of lactate (P-LAC) as part of an evaluation of welfare in finishing pigs at commercial abattoirs (Study 1). Furthermore, if lactate is to be used as an on-site indicator of pre-slaughter welfare at abattoirs, access to a fast analysis, such as whole blood analysis, is necessary. Hence, the secondary aim was to compare the concentration of lactate in whole blood (W-LAC) with P-LAC (Study 2).

STUDY 1

- 80 pigs from four herds were included.
- Behavioural and handling observations were carried out in the race to the stunning chamber and included slipping, falling, being moved by automatic gates and lifting by other pigs.
- Behavioural and handling measurements were recorded using one-zero sampling and summarized to scores 0 (no events observed), 1 (1 observed) and 2 (2 or 3 events observed).
- At sticking, a blood sample was collected for analysis of P-LAC (automatic biochemistry analyser, ADVIA® Chemistry Systems, Siemens, Erlangen, Germany).



A significant relationship between the scores for behaviour and handling in the race and P-LAC was found (P = 0.008). Different letters (a and b) indicate a significant difference at P < 0.05. Thus, P-LAC might be an indicator of welfare of pigs at the abattoir.

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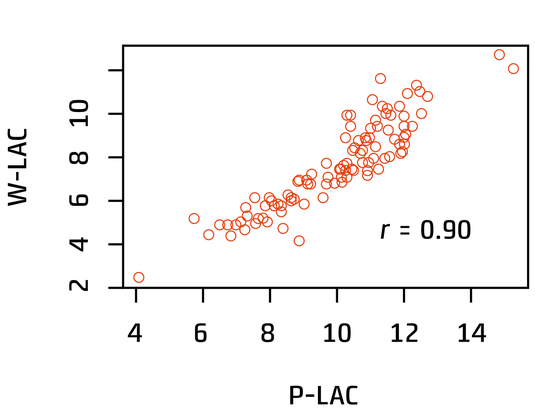
STUDY 2

- At sticking, blood samples from 107 pigs were collected.
- The blood samples were analyzed for W-LAC using a handheld lactate analyzer (Lactate ProTM Blood Lactate Test Meter, Arkray, Shiga, Japan) and P-LAC (automatic biochemistry analyser, ADVIA® Chemistry Systems, Siemens, Erlangen, Germany).



Comparison of W-LAC and P-LAC showed a correlation of 0.90 suggesting that W-LAC can replace the more elaborate plasma analyses. One outlier has been removed.

CONCLUSION

- A significant relationship between handling and behaviour prior to slaughter and P-LAC, suggest that P-LAC may be used to indicate pre-slaughter welfare in finishing pigs.
- The faster W-LAC analysis is applicable.