

Using a heating mat to new-born piglets increases the rectal temperature

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Background

At birth, piglets have the same body temperature as the sow, which is mostly around 39-39.5 °C. Piglets are born into cooler facilities, and it leads to a 2-4 °C drop in body temperature within a few minutes after birth. Pre-weaning survival rates are affected by piglets' rectal temperature after birth. A previous study demonstrated that piglets with a rectal temperature above 36 °C 2 hours after birth had a far greater chance of surviving the first seven days of life compared with piglets with a lower temperature.

Objective

The aim of this study was to investigate the effect on rectal temperature measured 30 minutes after birth, on the frequency of new-born piglets that were placed on a heating mat for 15 or 60 minutes. This was compared with the effect on piglets placed on un-heated metal slatted floor for 60 minutes.

Materials and Methods

The study comprised three groups:

- Piglets placed on slatted floor, no heating mat, for 60 minutes (control).
- Piglets placed on a heating mat for 15 minutes followed by 45 minutes on slatted floor.
- Piglets placed on a heating mat for 60 minutes.

After one hour, the piglets were placed at the sow's udder.



Figure 1. New-born piglet placed in cage on heating mat. Within the first 10-15 seconds after birth, each piglet was marked and weighed, and its rectal temperature was measured with a digital thermometer. Rectal temperature was also measured 15, 30, 45, 60, 90 and 120 minutes after birth. In the first 60 minutes of the study, piglets were restricted in individual cages (figure 1).

The frequency of new-born piglets with a rectal temperature above or below 36 °C measured 30 minutes after birth was the primary parameter of the trial and was analyzed in a generalized linear model. Piglet birth weight and time from birth of the first piglet until birth of the actual piglet were explanatory variables, group constituted systematic variable and sow was the random variable.

Results

The study comprised 136 piglets from seven litters with a litter size of 16-23 liveborn piglets (average 19.4 piglets/litter).

The control piglets had an average drop of 4.6 °C while average drop of piglets offered 15 or 60 minutes on the heat mat was a drop of 3.6 and 3.2 °C, respectively. After 30 minutes 5% of the piglets in the control group had a rectal temperature higher than 36 °C compared to 41 and 78% respectively in the groups with heat mat. The differences were significantly $P < 0.0001$.

Approx. 50% of the piglets in the control group had at some time-point a rectal temperature below 36 °C, and two hours after birth, 14% still had a temperature below 36 °C.

In addition, data showed an average difference of 0.6 °C in rectal temperature after 30 minutes between piglets born as number 1-10 and piglets born later.

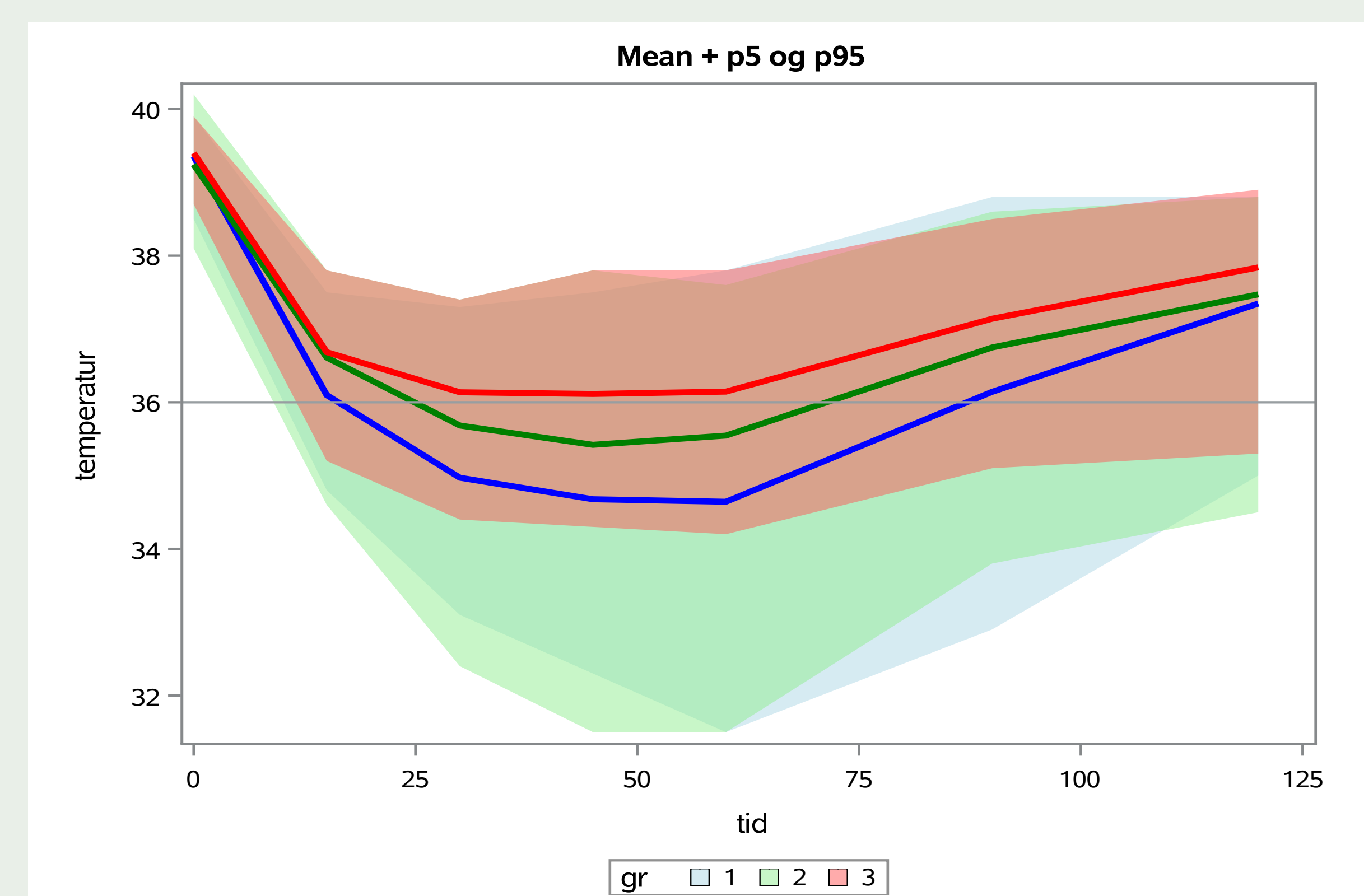


Figure 2. Average rectal temperature in piglets (minutes after birth). The Confidence interval indicate 5/95%. Control=blue, 15 minutes on heating mat=green and 60 minutes on heating mat=red. The horizontal grey line indicates 36 °C.

Conclusions

All piglets in this study were born with a rectal temperature of 38-40 °C. Regardless of the group the piglets had a drastic drop in rectal temperature during the first 30 minutes after birth. Piglets that were not offered additional heating (control) in average experienced a drop of 4.6 °C, compared to 3.6 or 3.2 °C for the piglets that were placed on a heating mat for 15 or 30 minutes.



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