Monitoring the nest building and parturition progress using acceleration data

Cécile Cornou and Anders R. Kristensen

Findings
- The intensity of the pre-partum high activity is higher for sows that received straw.
- All sows showed a significant increase of Lying Active behaviour at the approach of farrowing.
- The last hour of the pre-partum high active behaviour and the increase of the Lying Active behaviour characterize the onset of farrowing.
- A reduction of the number of activity shifts characterizes the end of farrowing.
- No significant difference was observed in the activity of sows farrowing in the daytime vs at night.
- A longer pre-partum high active period is associated with more long birth intervals.

Methods
A method to monitor nest building and farrowing activities using activity types classified from acceleration data is suggested. The progress of farrowing (start, end and birth of each piglet) is analyzed for 19 sows housed in crate: half was provided with Straw, and half had No Straw.

The pre-partum high active behaviour is defined as the hours when the sows performed more than 50% active behaviour per hour, allowing for one hour of resting. It is characterized by its duration, intensity and its last hour as compared to the onset of parturition.

The long intervals between born piglets are intervals longer than three times the median; and modeled using generalized linear models.>

Perspectives
- The use of classified activities obtained from automatically collected acceleration data is promising to monitor sows’ activity around farrowing, with the advantage of being less time consuming than the analysis of video recordings.
- Perspective of application of the method includes a better supervision of farrowing which could lead to a reduction of piglet mortality.