



Recovery from intrauterine growth restriction in piglets defined by their headshape: A pilot study

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Piglets that have suffered severely from intrauterine growth restriction (IUGR) have a dolphin-like headshape (due to brain sparing) at birth but this headshape is not observed at weaning, suggesting that they either die or lose the dolphin-like headshape.

We have previously shown that piglets given an IUGR score at birth based on their headshape ingest insufficient amounts of colostrum, have an increased risk of dying in early lactation, have lower liver glycogen and glucose levels at 24 hours (Amdi *et al* 2013, JAS).

The aim of this study was to investigate when piglets lose their dolphin-like headshape and if it is related to body weight (BW).



Data from 370 piglets were used in this pilot. Piglets were classified as either “normal”, “mildly IUGR” (m-IUGR) or “severe IUGR” (s-IUGR) based on the head morphology at birth and re-scored after one and two weeks. Data was analysed in proc mixed in SAS.

At birth:

218 piglets were deemed “normal” (average BW of 1.6 kg), 138 piglets were m-IUGR (average BW of 1.2 kg) and 14 piglets were s-IUGR (average BW of 0.8 kg).

After one week:

All the piglets given an s-IUGR score were still alive and were re-scored as m-IUGR.

In total 314 piglets were re-scored as normal with an average BW of 2.7 kg and 56 piglets given an m-IUGR score with an average BW of 1.7 kg of these 42 piglets had also been scored m-IUGR the previous week.

After two weeks:

All piglets were re-scored as normal with an average BW of 3.9 kg. IUGR score at birth influenced gain from 0 to 14 days ($P < 0.001$).

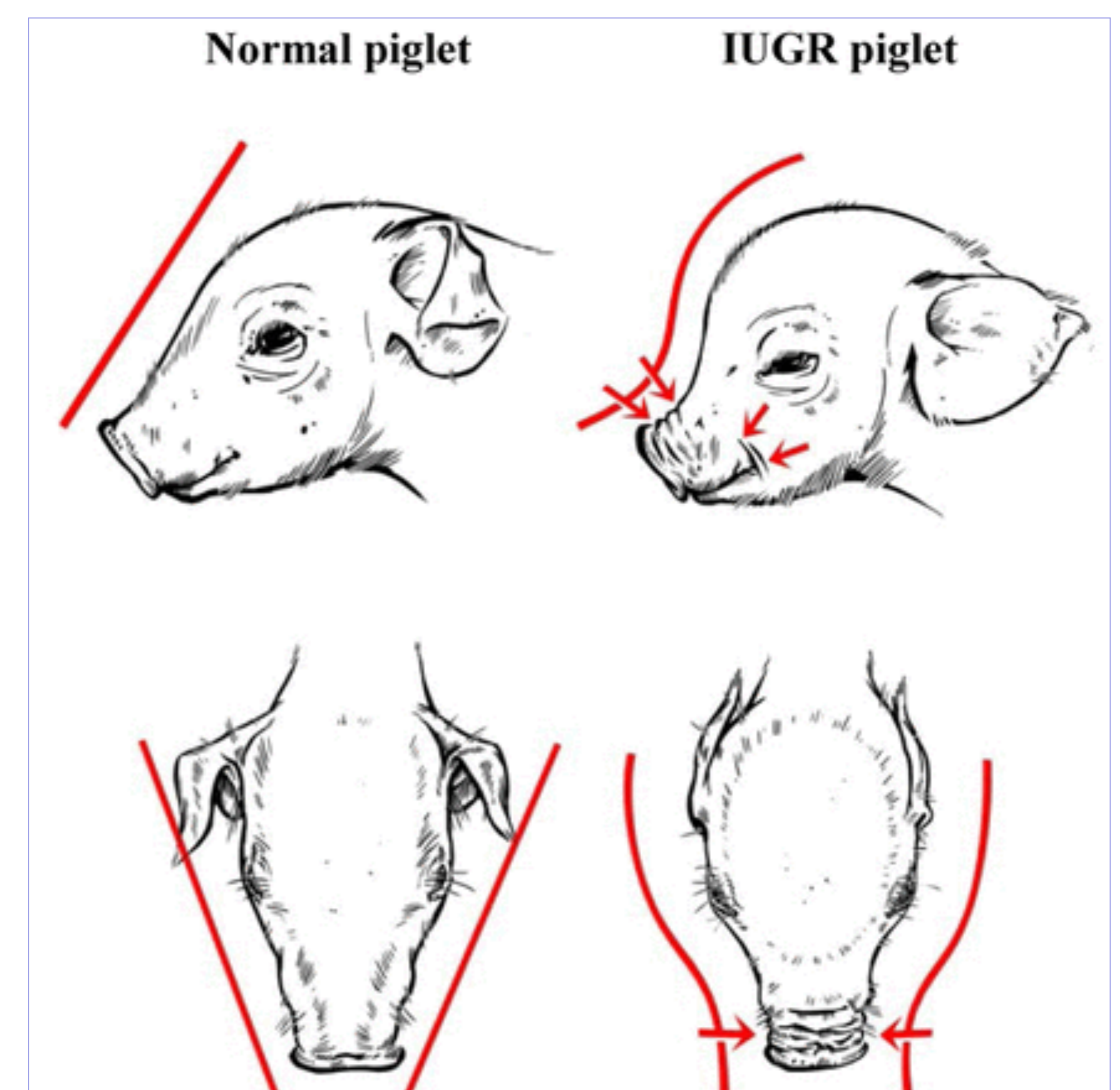


Figure from Hales *et al.*, 2013, JAS

Characteristics of IUGR

- Steep dolphin-like forehead
- Bulging eyes
- Wrinkles perpendicular to the mouth
- Hair with no direction of growth



The results suggest that if an IUGR piglet can reach approx. 2 kg BW the dolphin-like headshape seems to disappear, however, daily gain at least up to d 14 is still influenced by their headshape at birth.