Locomotion as a possible indicator of vitality in the newborn pig

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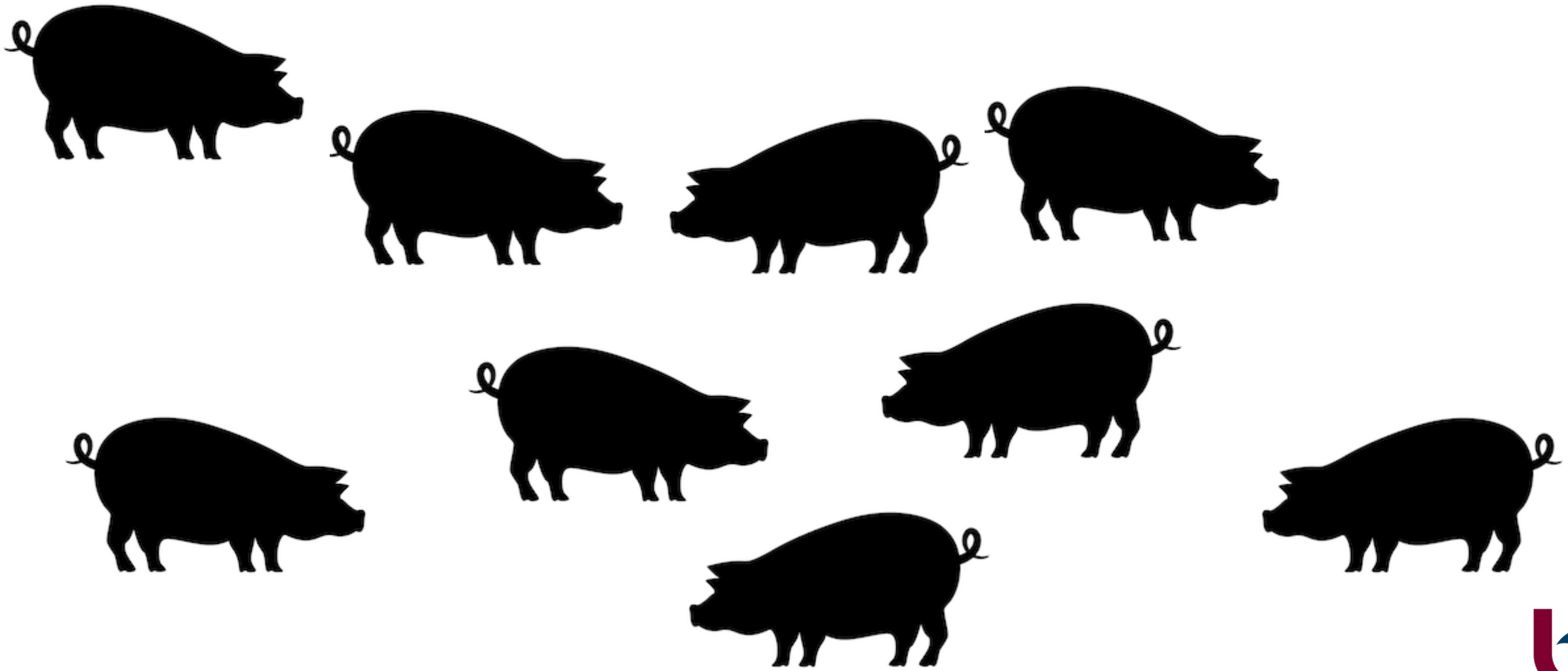
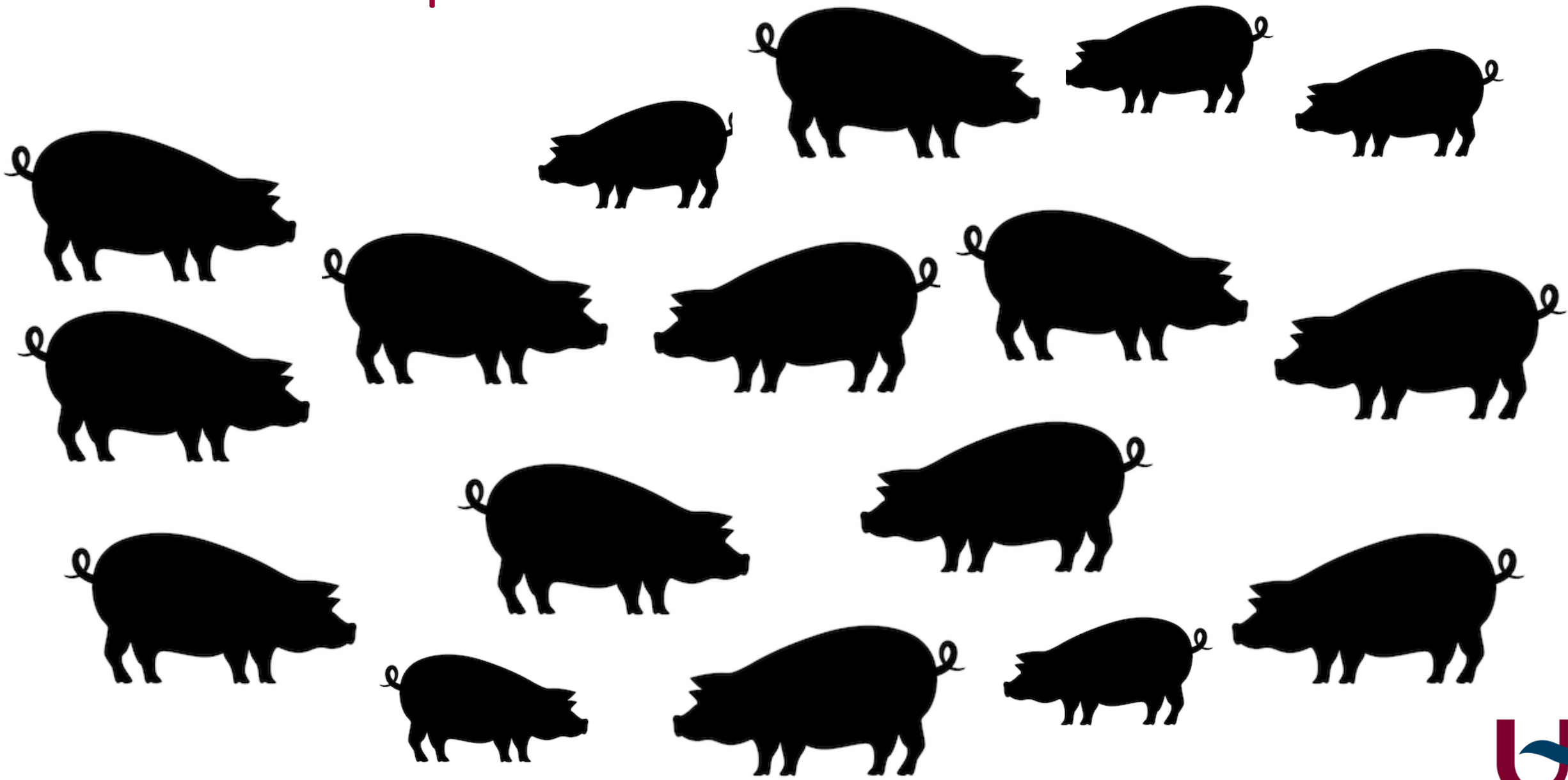
Introduction - Species



Introduction - Species



Introduction - Mortality

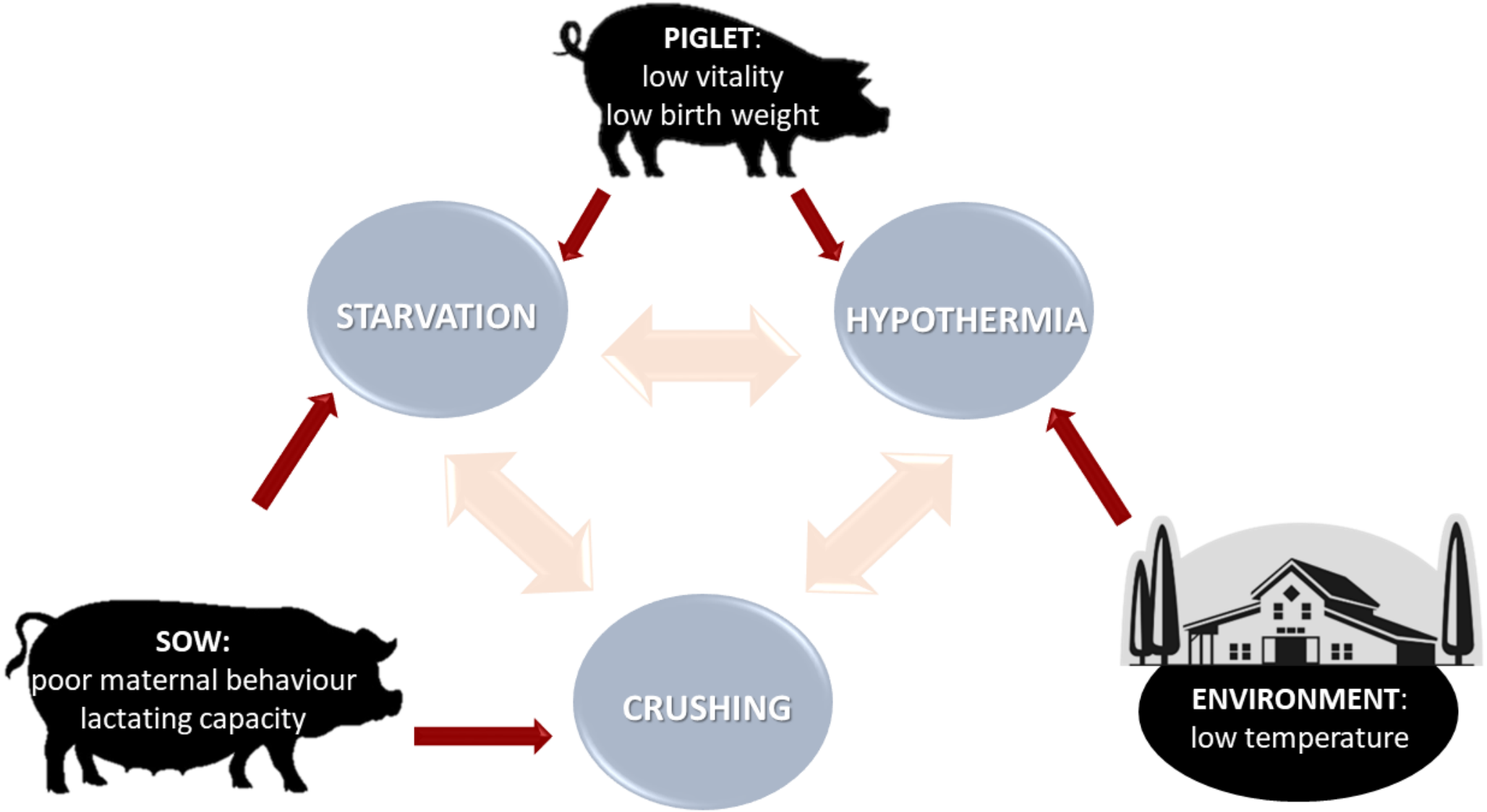
Litter size

Litter heterogeneity

Low birth weight piglets

Mortality

Introduction - Mortality



Introduction - Mortality

Piglet survival guide

Vitality

Good neuro-motor abilities

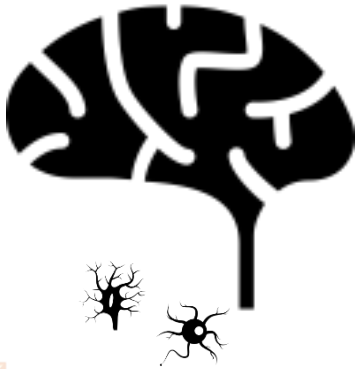
Stand up

Move towards udder

Compete for udder

Suckle udder

Introduction - Locomotion



Nervous system

Musculoskeletal system

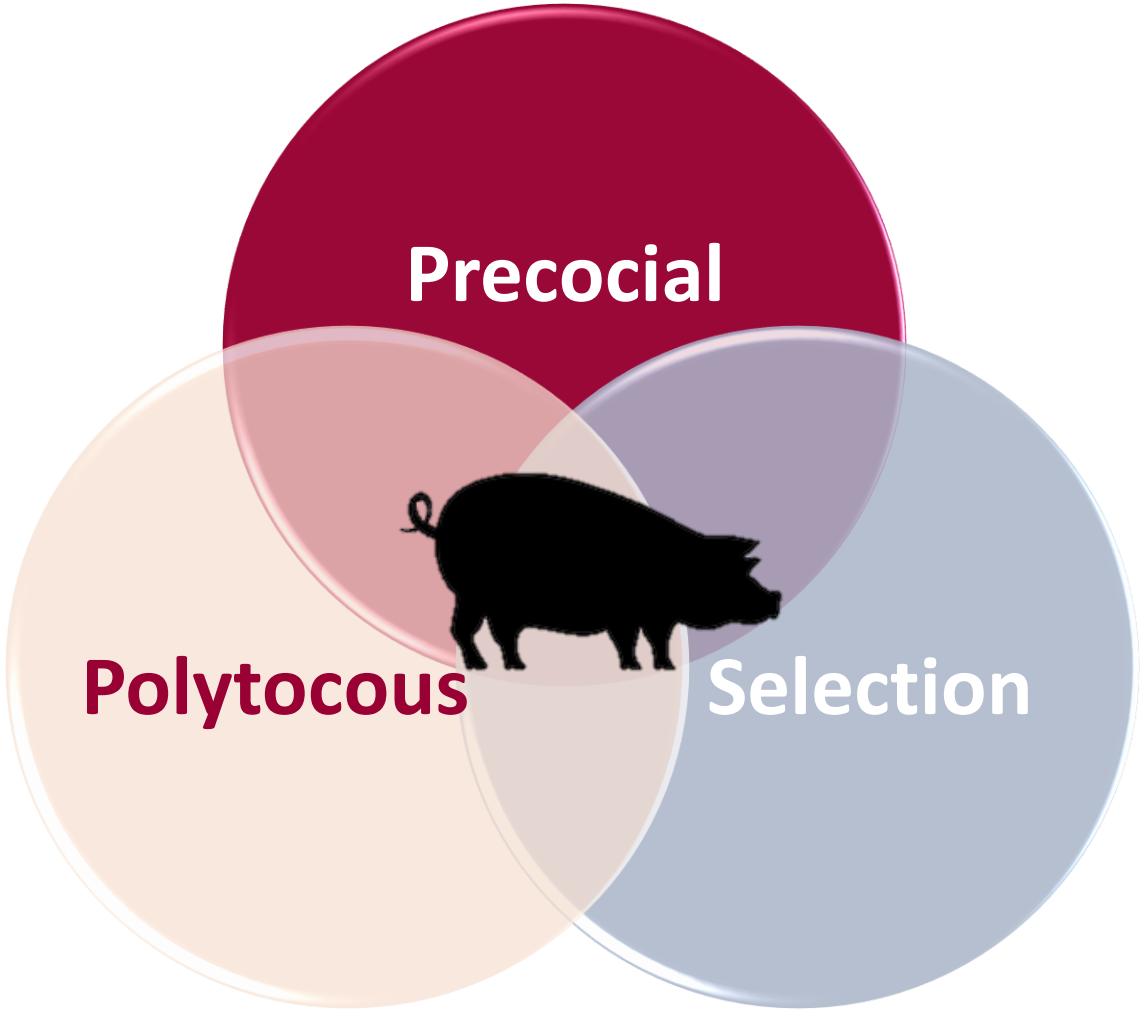
Environment

Introduction - Locomotion

ALTRICIAL

PRECOCIAL

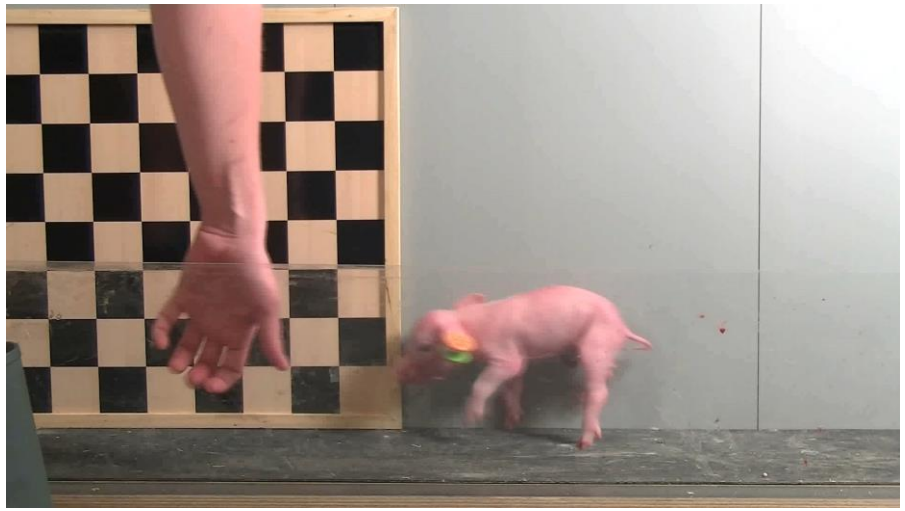
Introduction - Summary

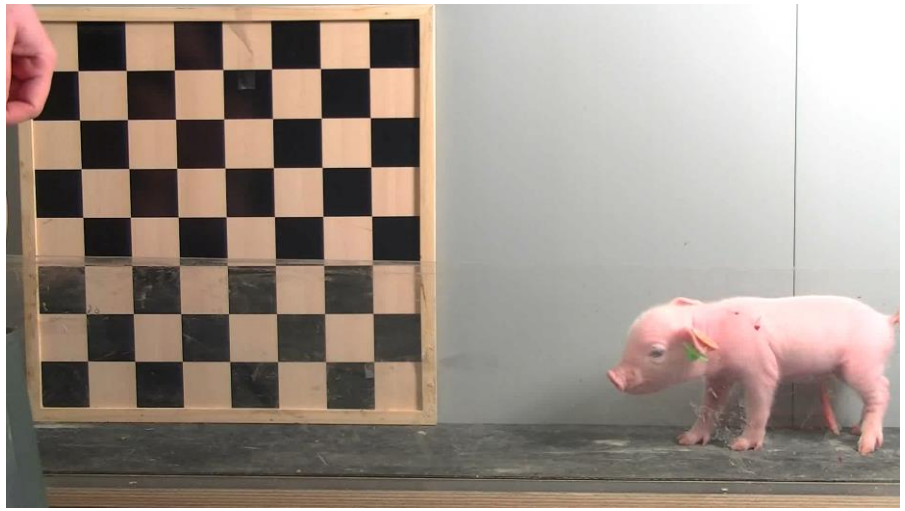


Research question – Step-time analysis

Do L piglets have a lower motor performance the first 96 h after birth, compared to N piglets?

Results – Step-time analysis





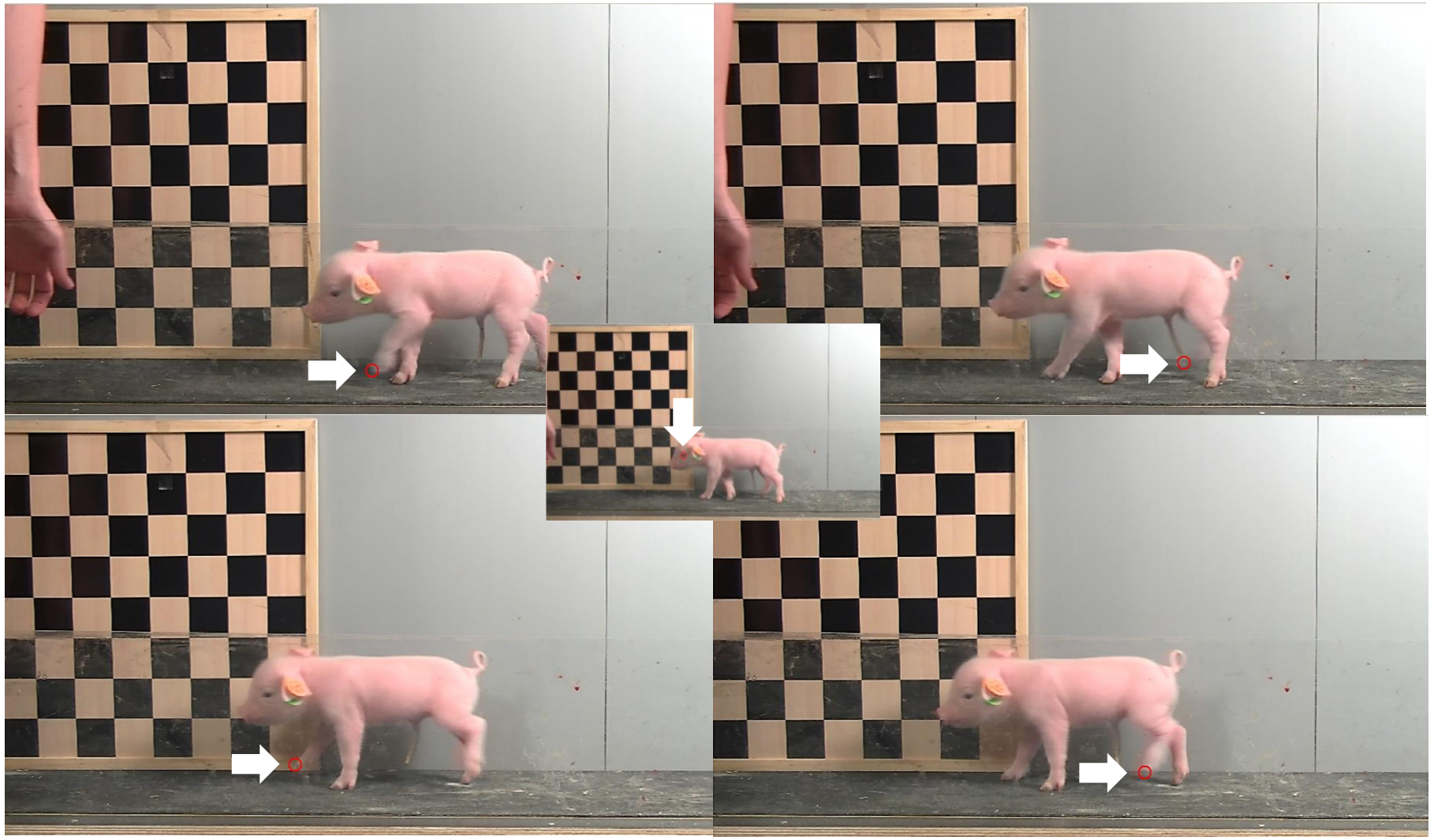
PLOS ONE

RESEARCH ARTICLE

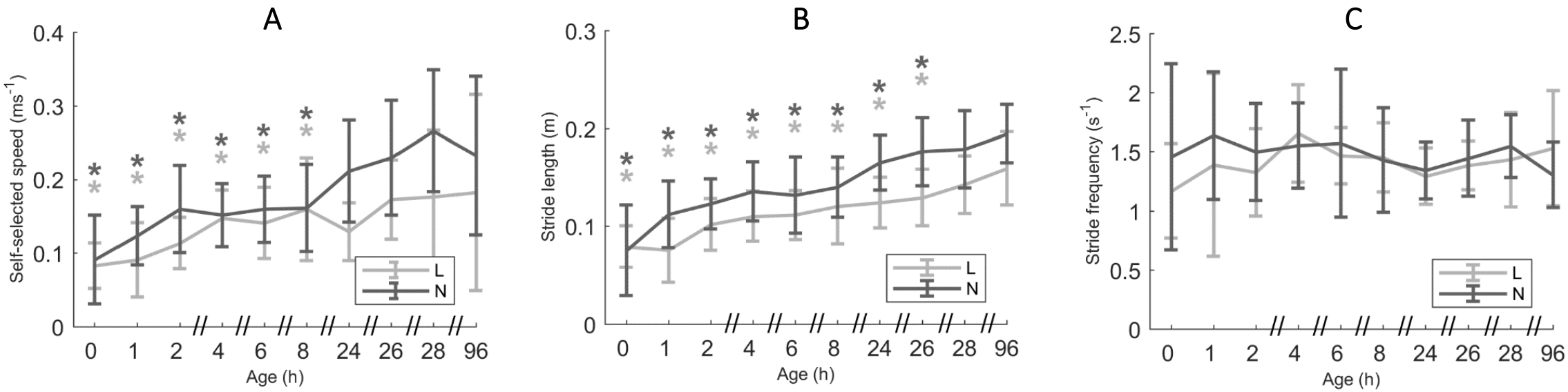
Does intrauterine crowding affect locomotor development? A comparative study of motor performance, neuromotor maturation and gait variability among piglets that differ in birth weight and vitality

Charlotte Vanden Hole[1], Peter Aerts[2,3], Sara Prims[1], Miriam Ayuso[1], Steven Van Cruchten[1], Chris Van Ginneken[1]*

Research question – Step-time analysis



Results – Step-time analysis



All indicated values are mean ± SD. Mean values indicated with * differ significantly from the control age of 96 h (*p*-value ≤ 0.05). L and N piglets differ significantly in panels A and B. n = 25; data points = 137 (A); data points = 548 (B,C)

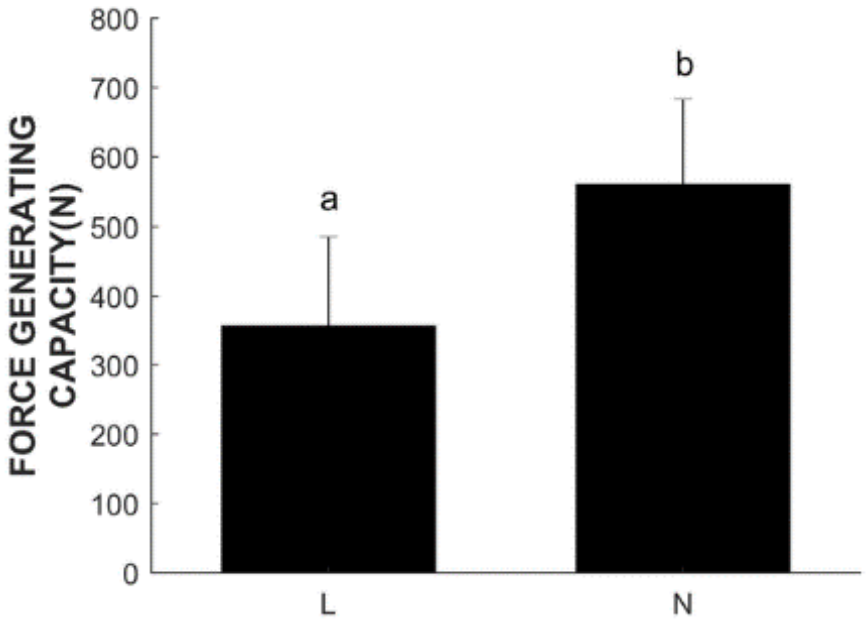
Research question – Functional morphology - Force

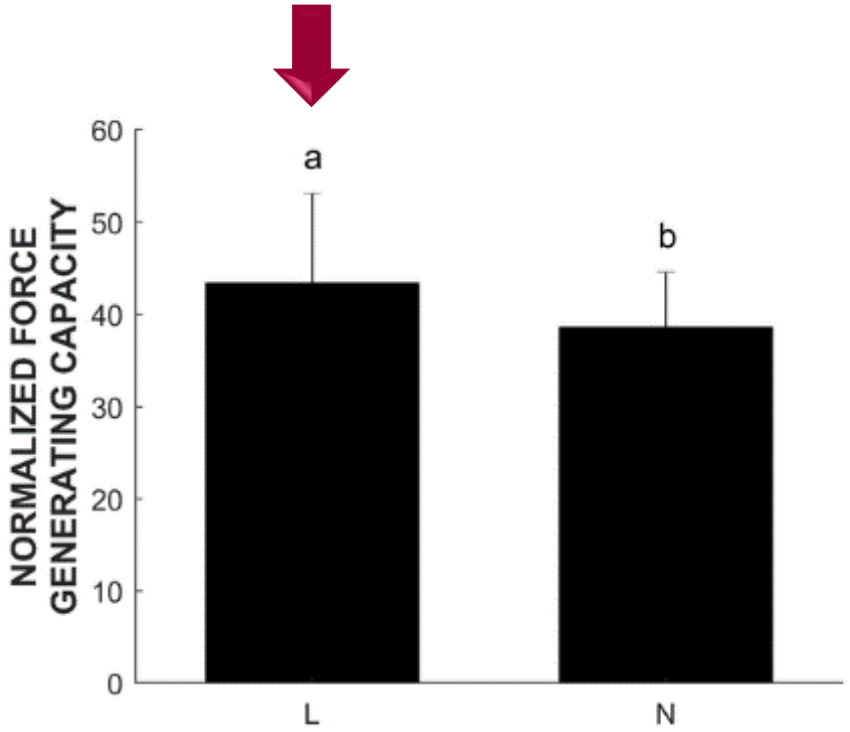
Do L piglets have a lower motor performance the first 96 h after birth, compared to N piglets?

Yes

Do L piglets have a lower force generating capacity?

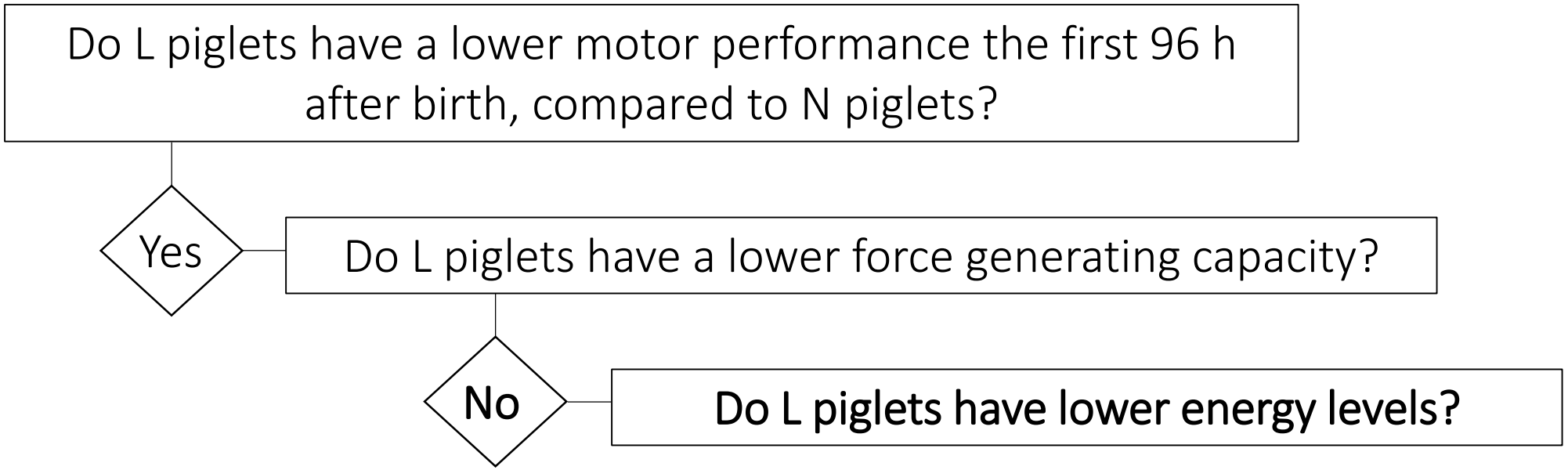
Research question – Functional morphology - Force



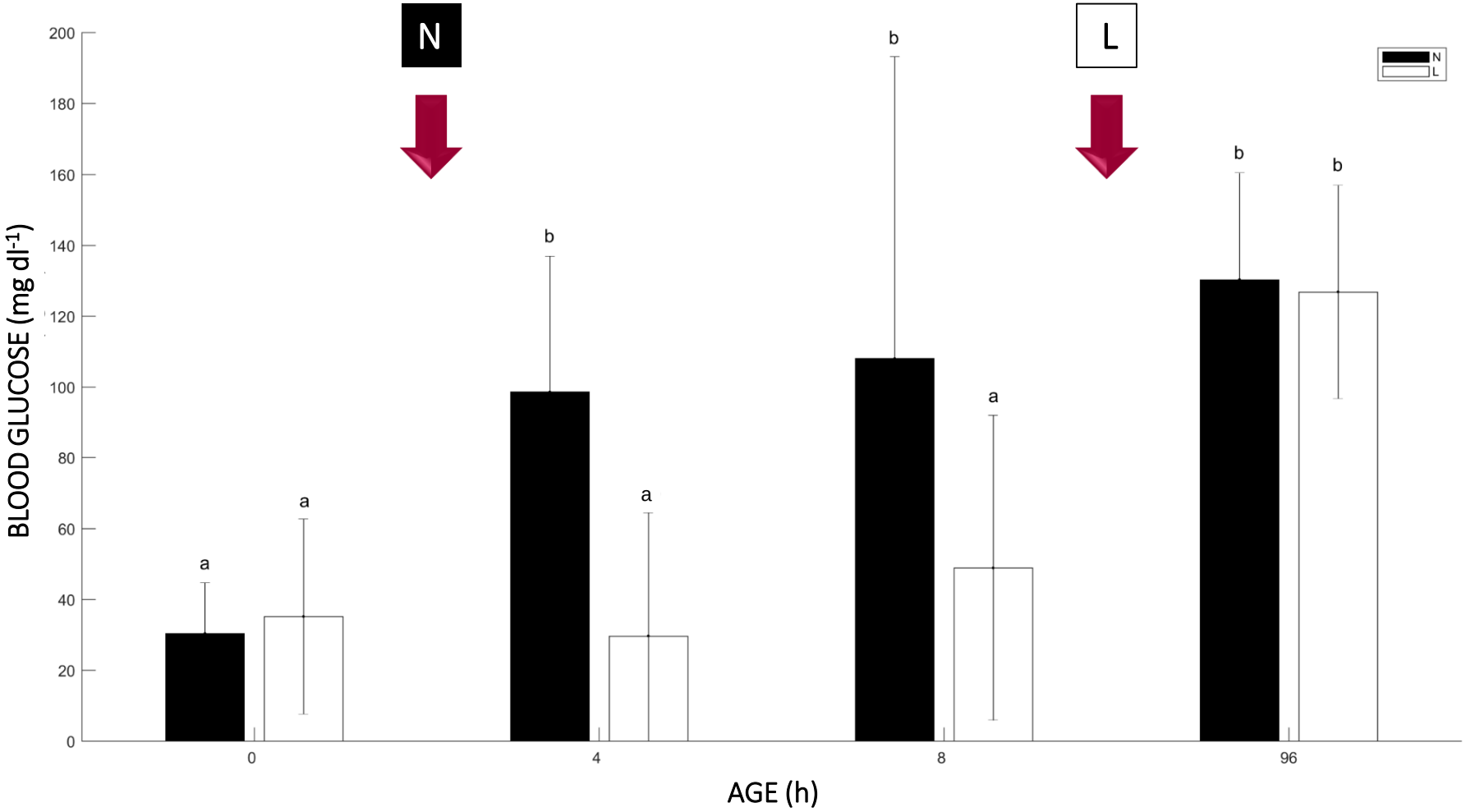


All values are mean ± SD. Significant differences (linear mixed models, $p \leq 0.05$) are indicated by different letters. n =32.

Research question – Functional morphology - Energy



Research question – Functional morphology - Energy



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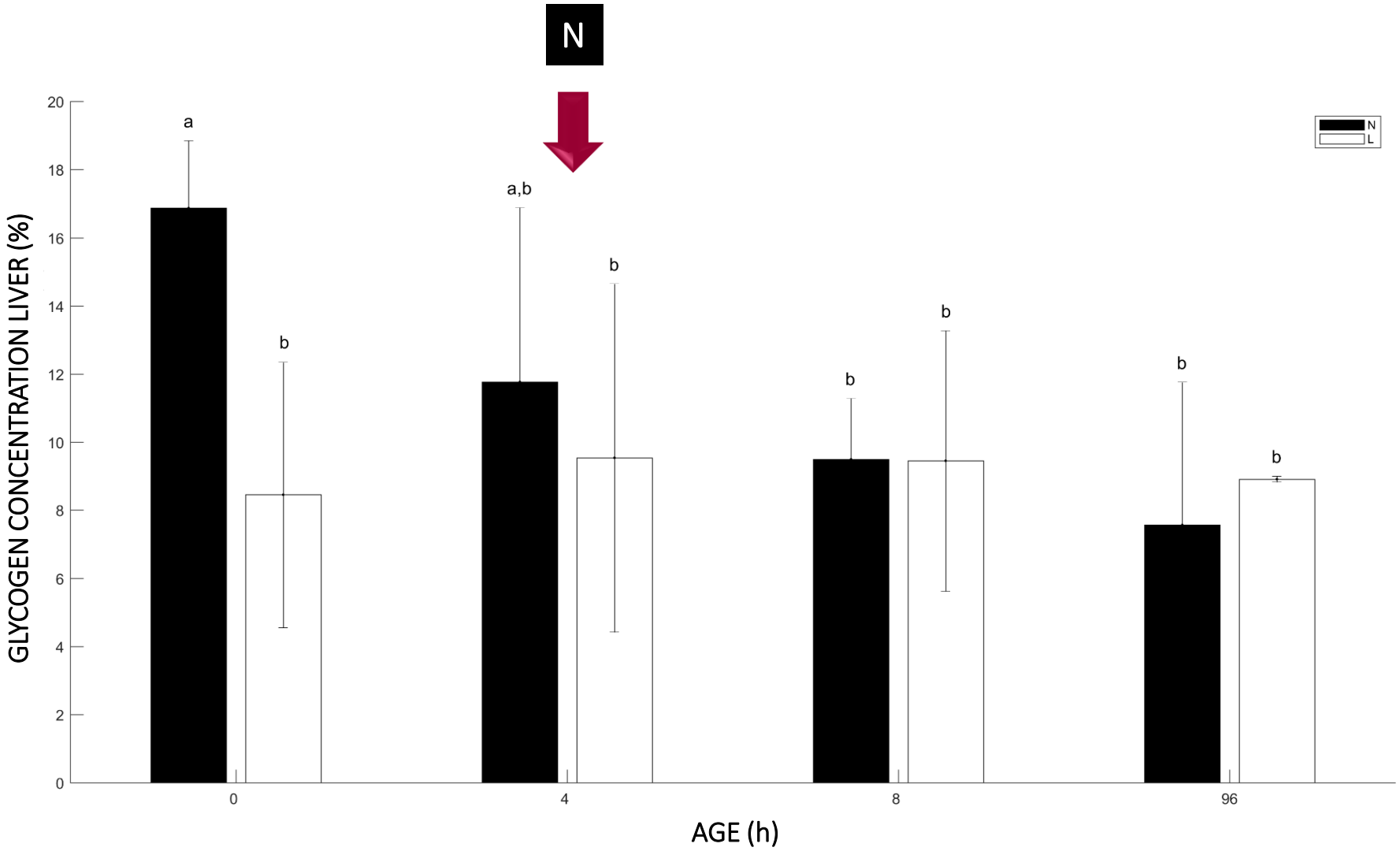
Research question – Functional morphology - Energy



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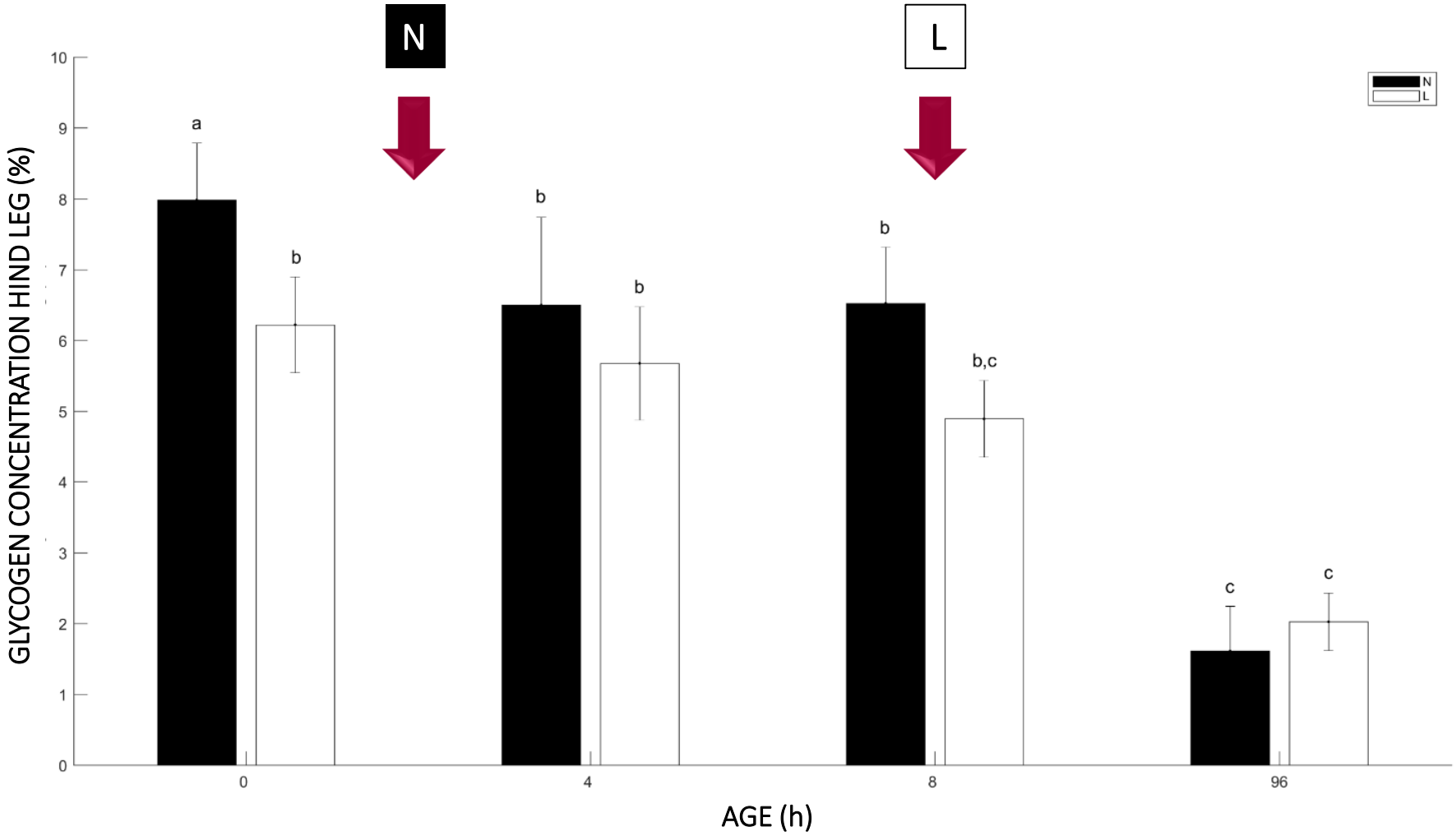
Research question – Functional morphology - Energy



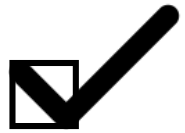
All values are mean ± SD. Significant differences (linear mixed models, $p \leq 0.05$) are indicated by different letters. n =32.

Conclusion

Do L piglets show a lower performance, compared to N piglets?

Do L piglets have a lower force generating capacity?

Do L piglets have lower energy levels?



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- AVEVE Neerhespen

Applied Veterinary Morphology
University of Antwerp

Functional Morphology
University of Antwerp

AVEVE

…And thank **you** for listening!