How to handle the weakest newborn piglets ?

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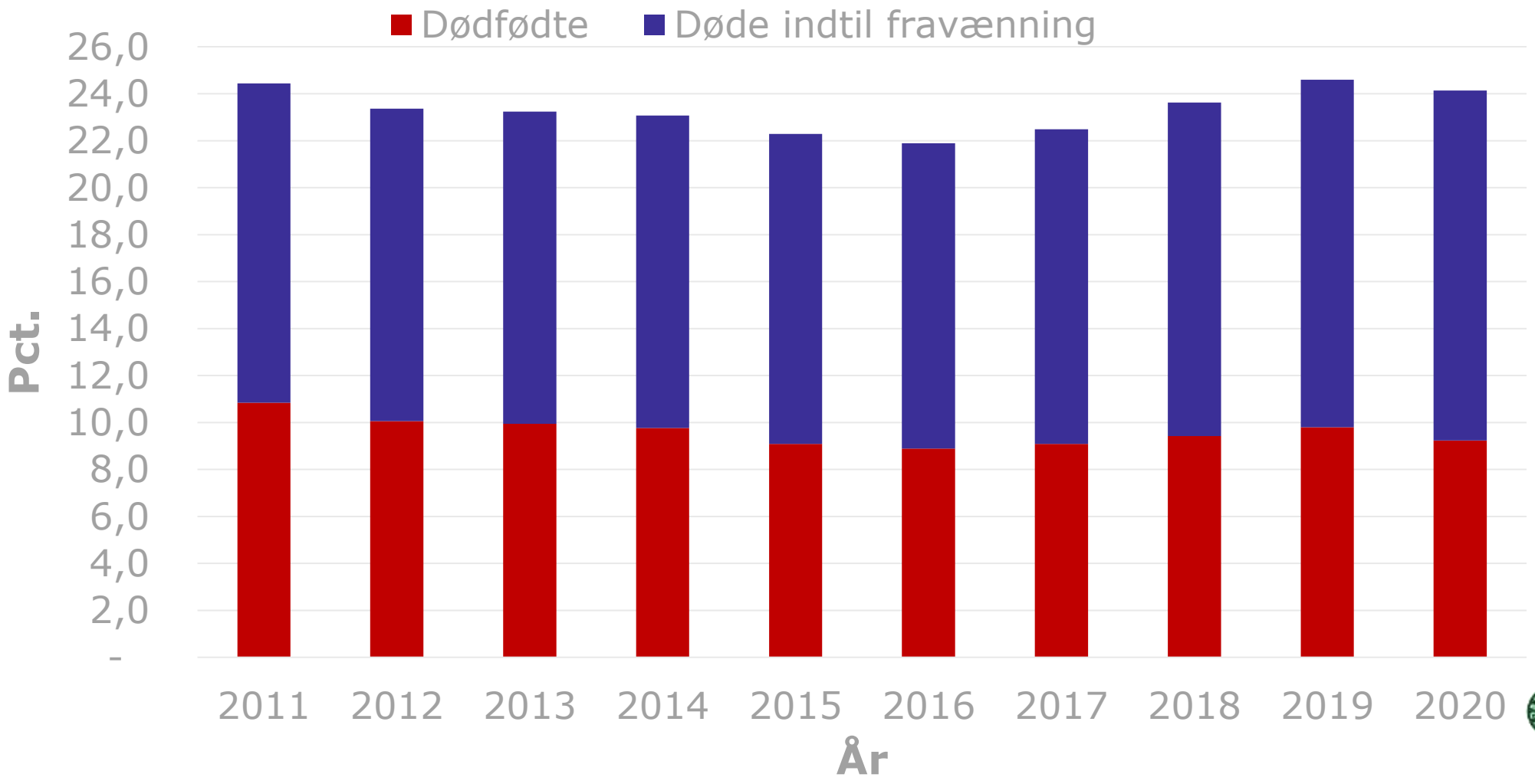
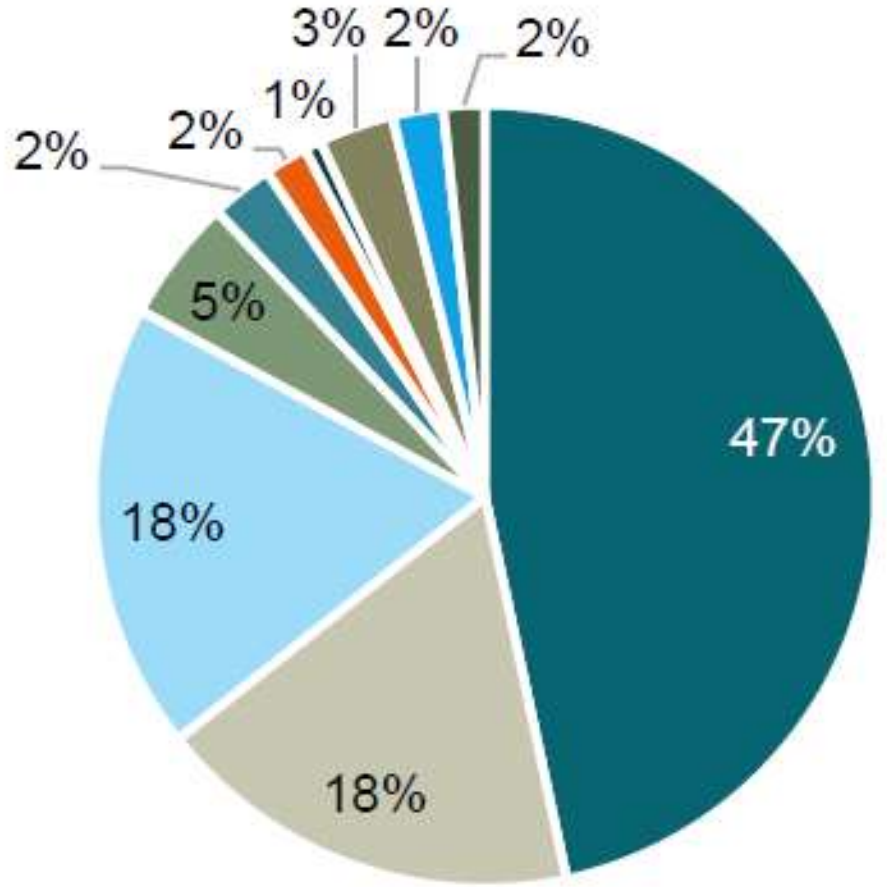
Veterinary Comparative Pediatrics
….all creatures great and small

Mortality rates similar across litter-bearing animals !

Still born and mortality from birth to weaning, --no change over 10 years !





Crushing

Starvation

Weak

Gut inflammation

Sepsis

Constipation

Failure to thrive

Unspecific

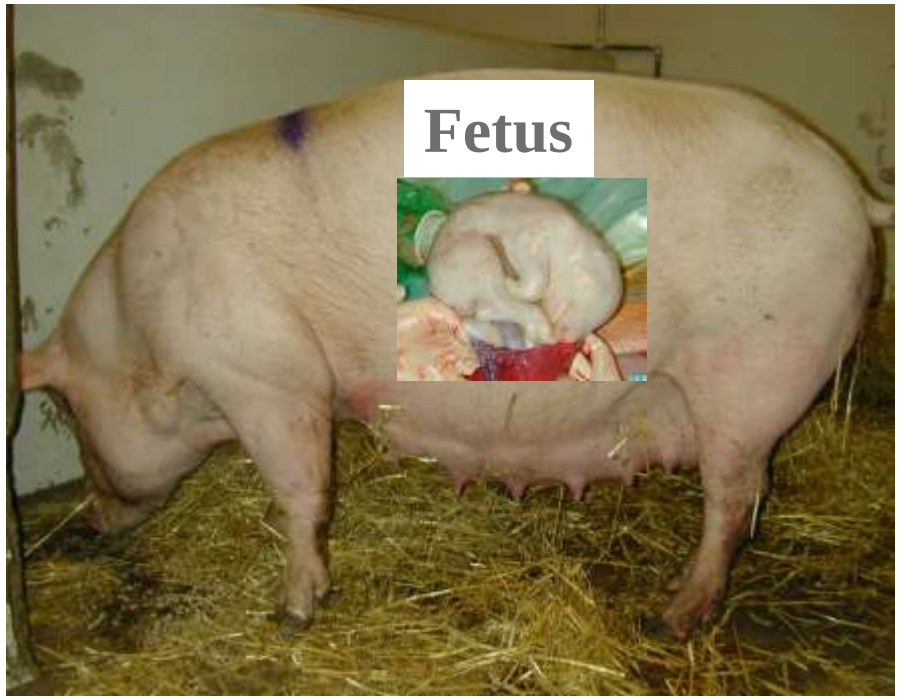
Malformation

Other

- Born too small
- Born too early
- Born with too little oxygen

How to correct ?

Major physiological transitions after birth



Nutrition and oxygen via umbilical cord

Nutrition via milk
Oxygen via lungs

Veterinary Comparative Pediatrics
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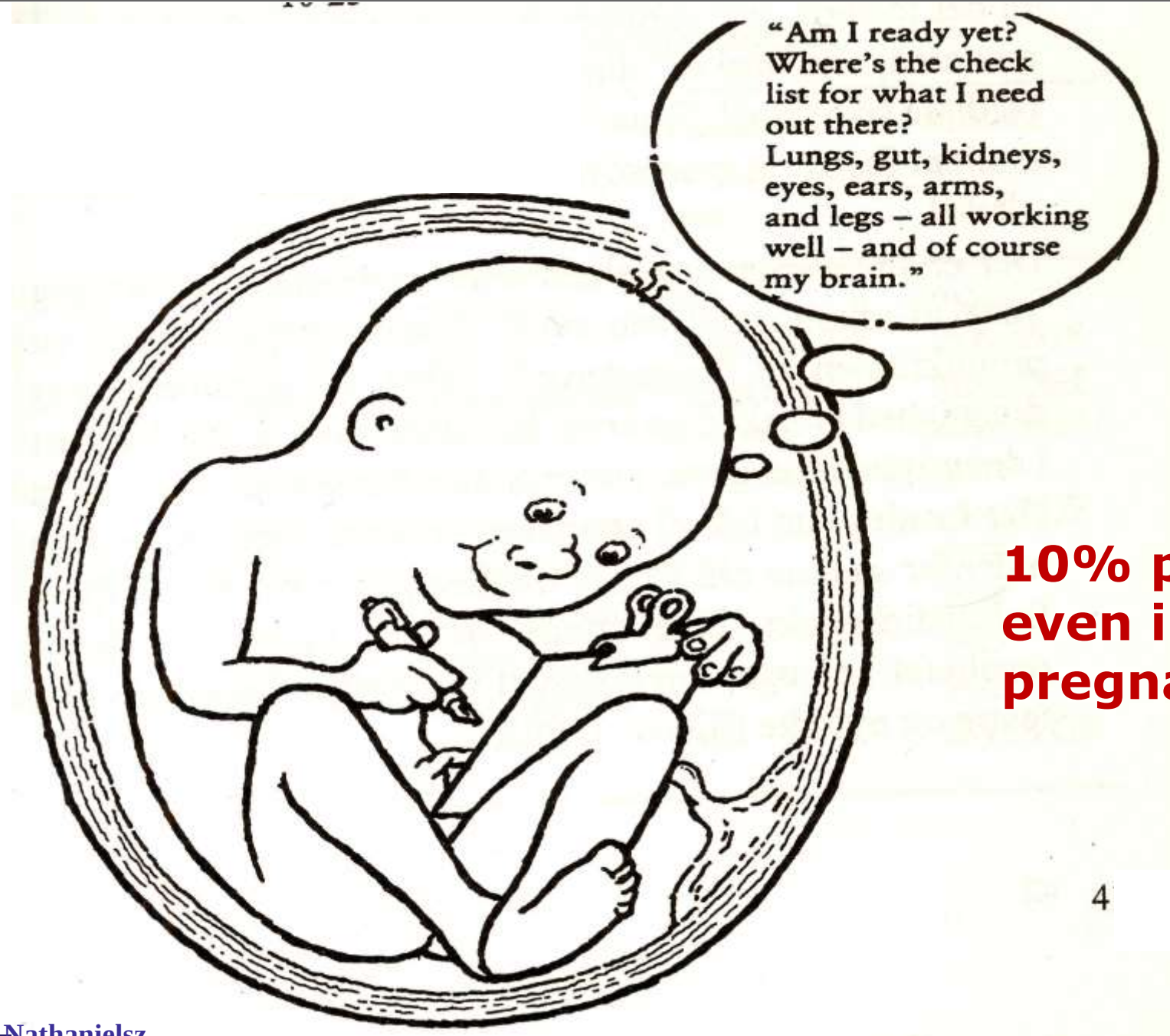
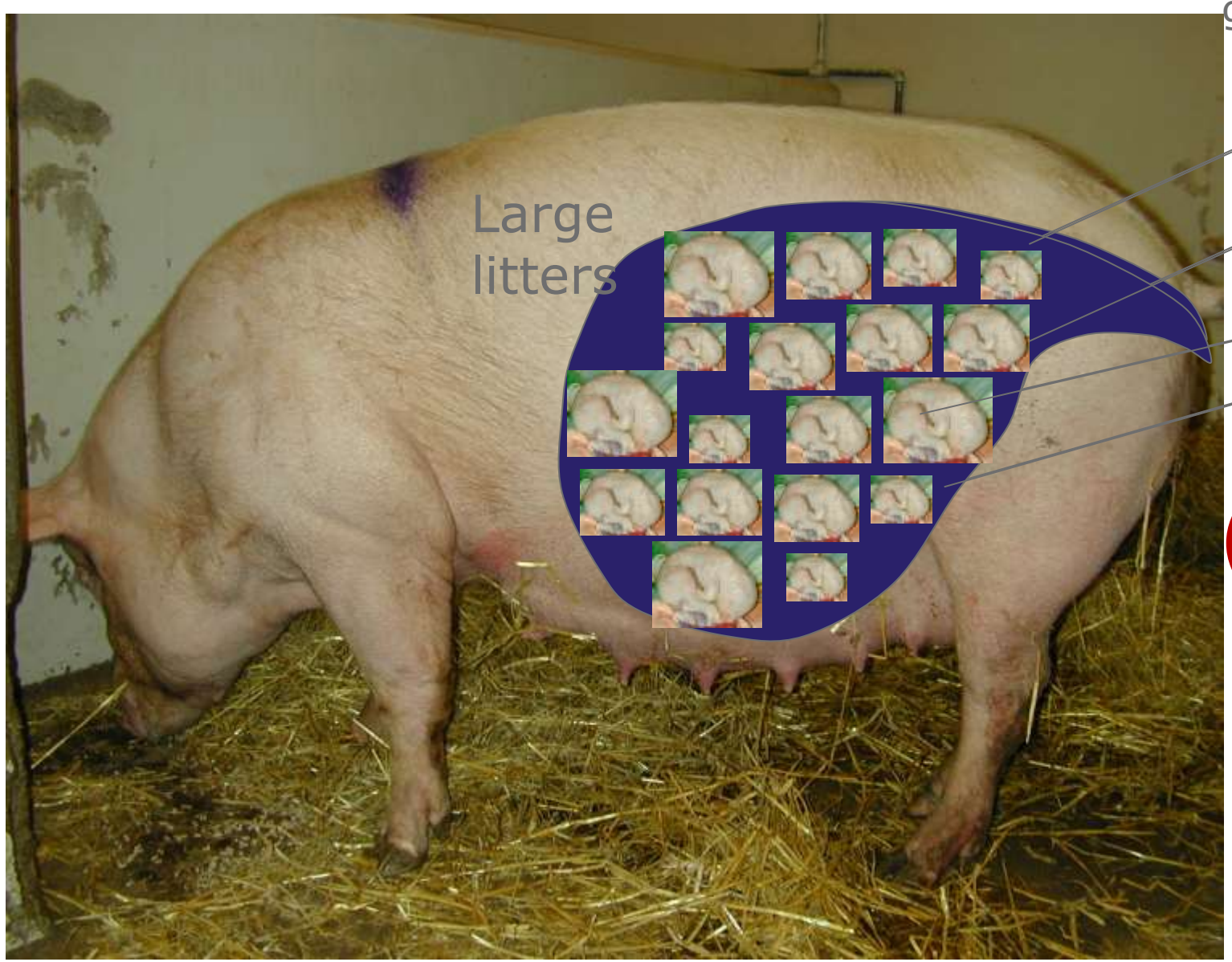


10% preterm birth even in singleton pregnancies !



Optimal gestational length:

118d

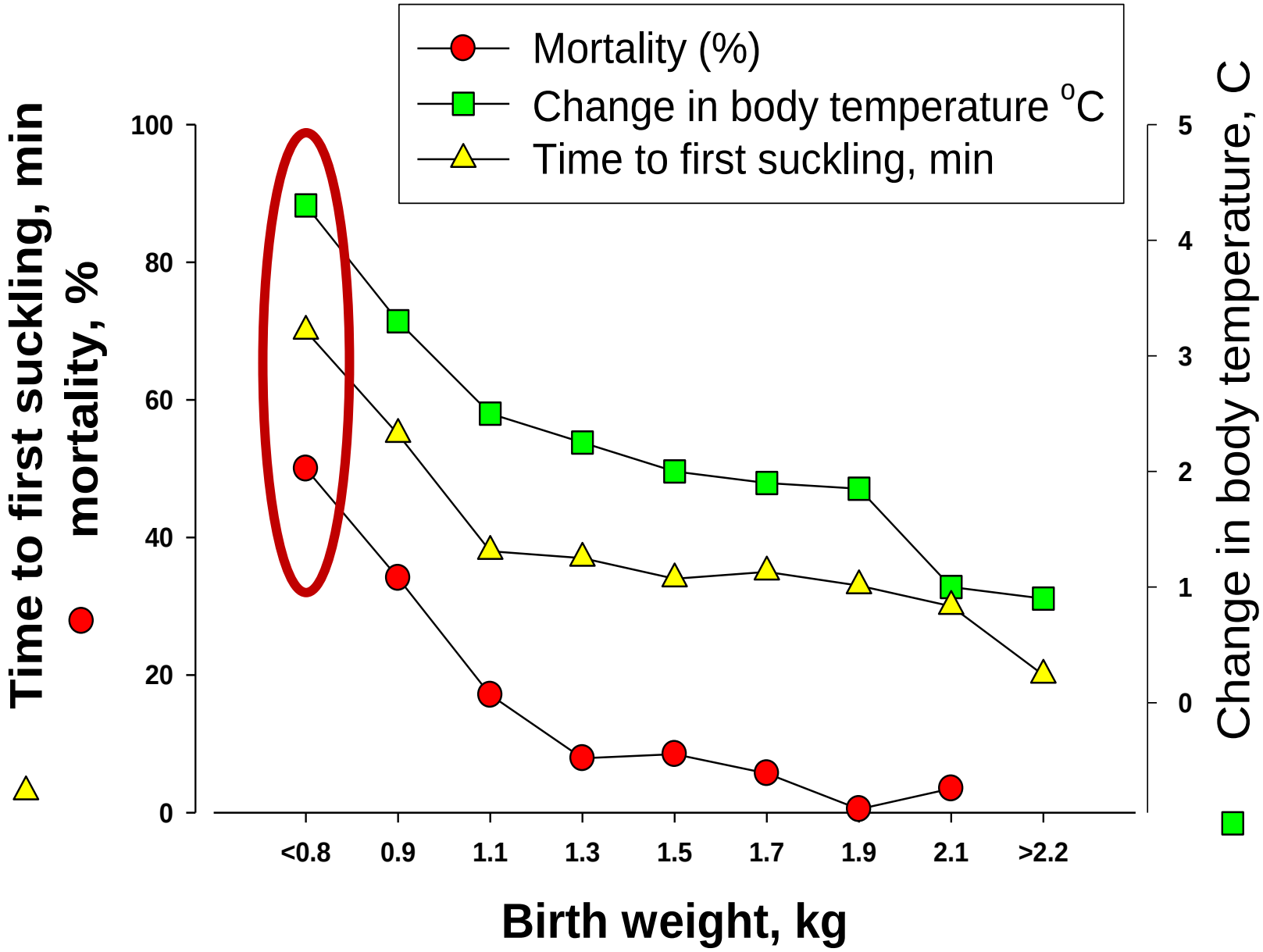
116d

113d

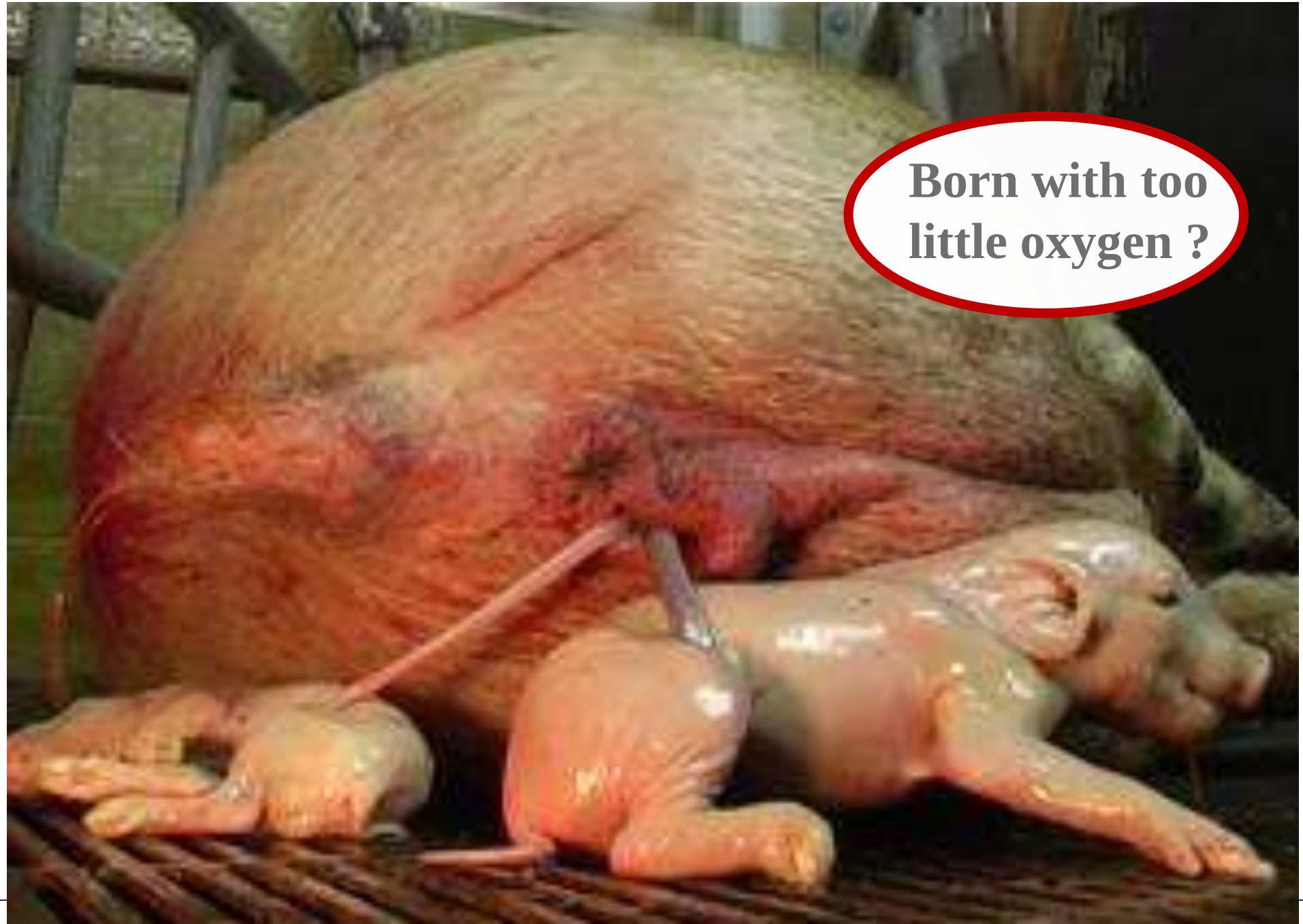
115d

Born too early ?

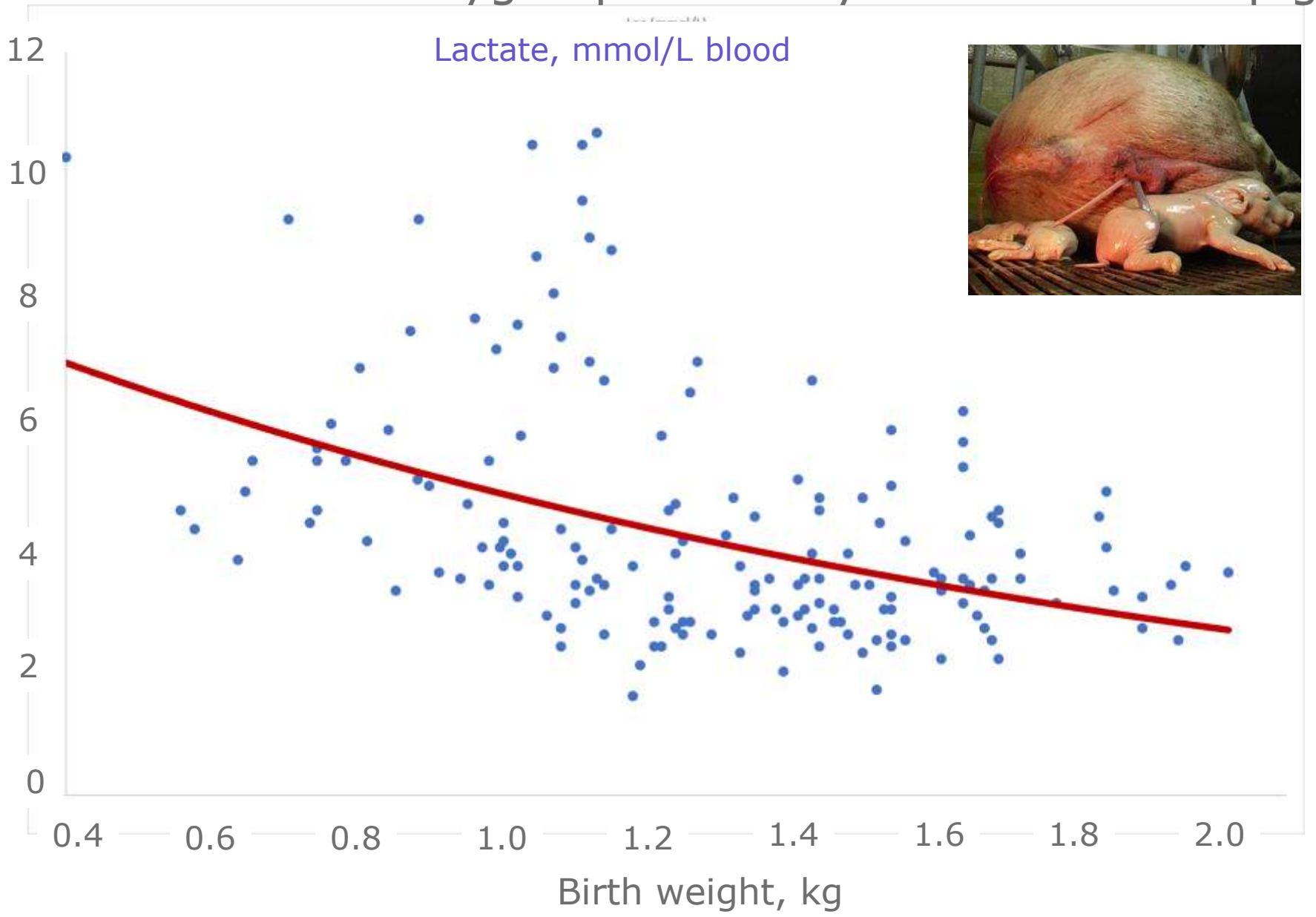
Birthweight and mortality in pigs (Hoy & Bauer, 1998)



Born too small?

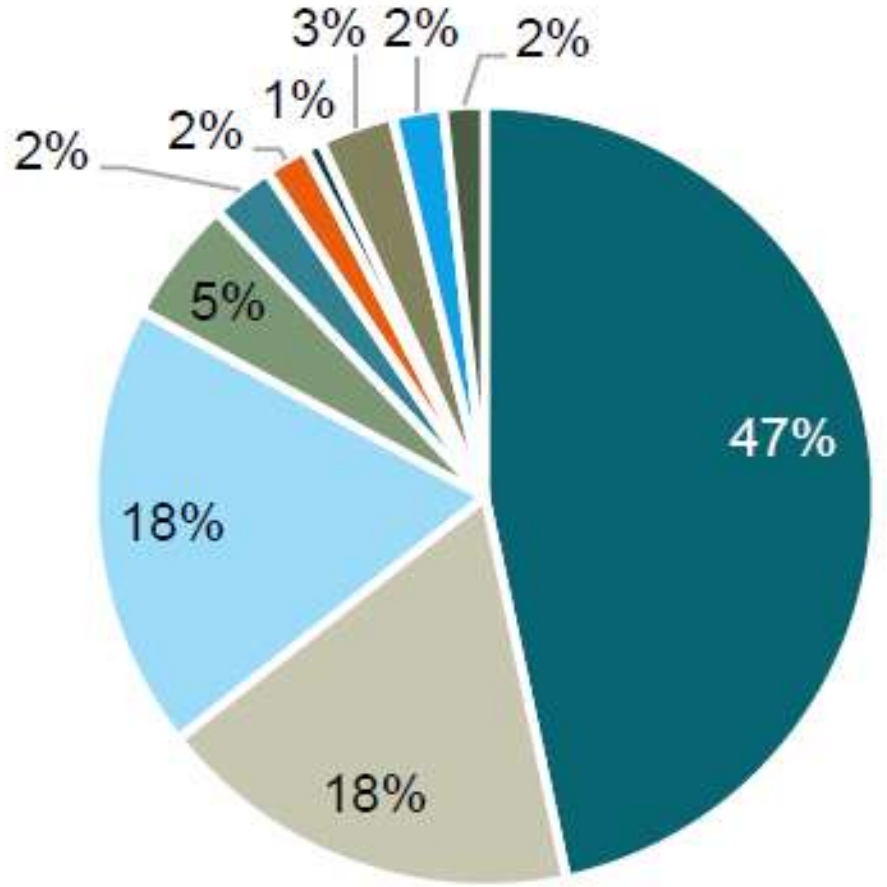

Born with too little oxygen ?

Too little oxygen particularly in the smallest pigs



pH
pO2
pCO2
Sat
Lactate
Glucose
HCO3-

Larsen et al.
unpublished



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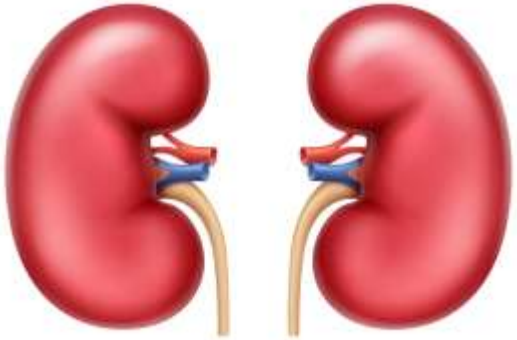
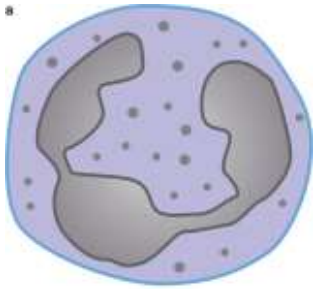
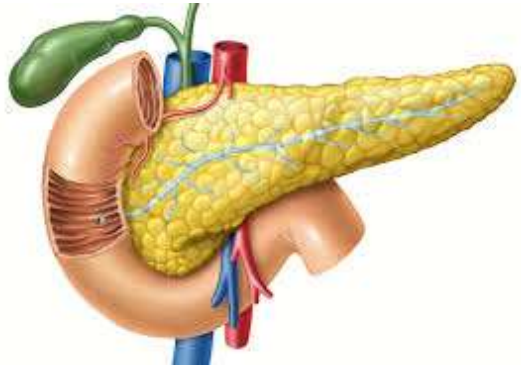
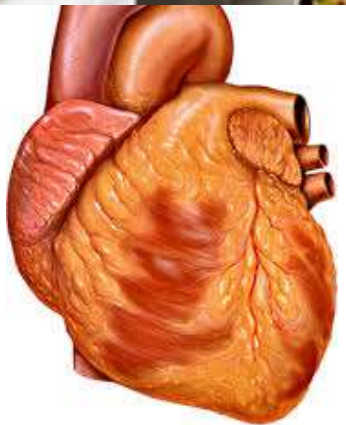
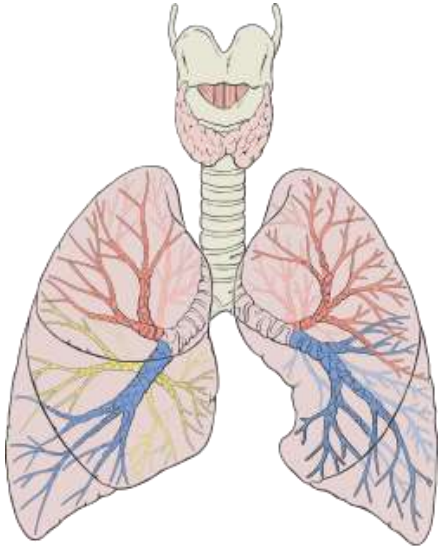
Chance of survival is defined by organ function







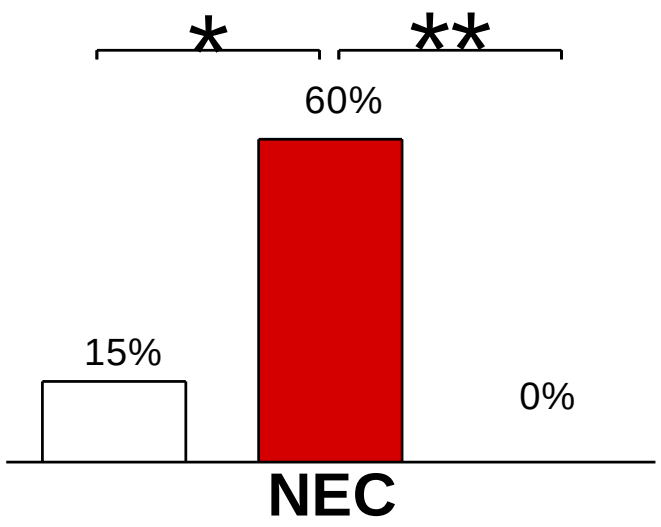


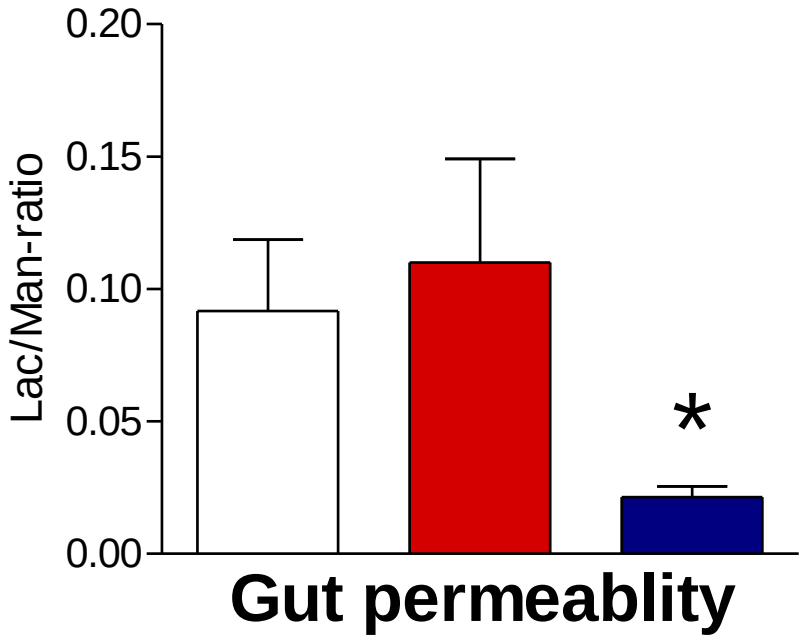


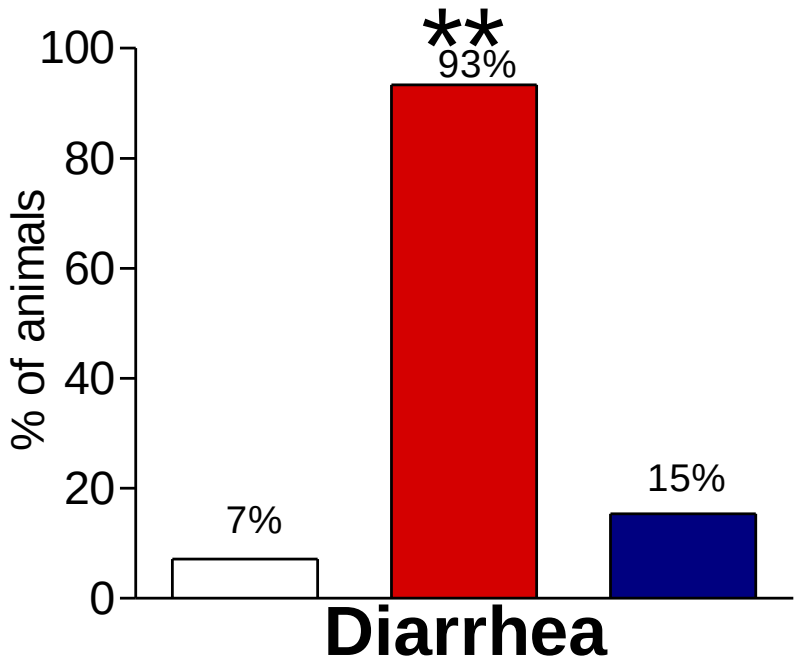
How to handle piglets born too early or too small or with too little oxygen ?

Milk replacer vs colostrum-replacer

in pigs born too early….



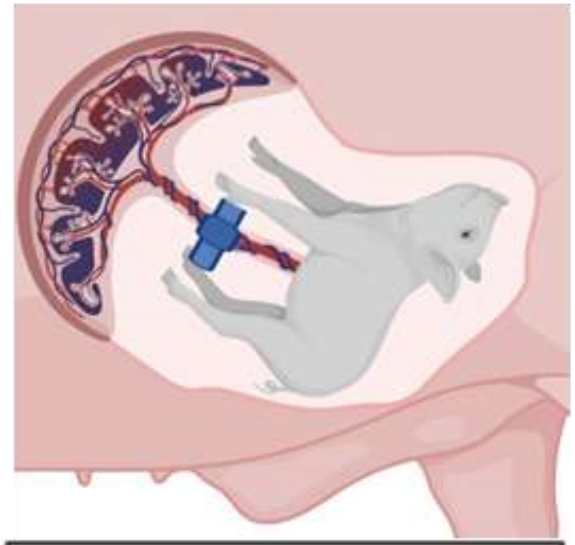


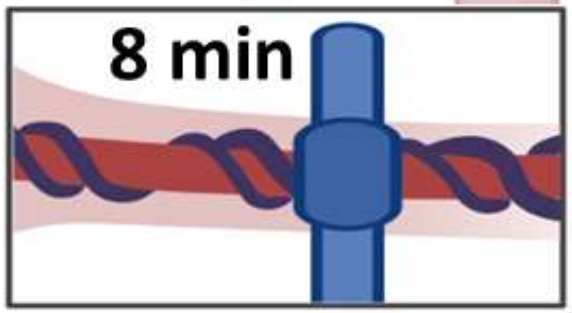


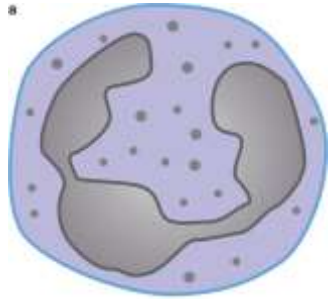
Am.J.Physiol. (2015)

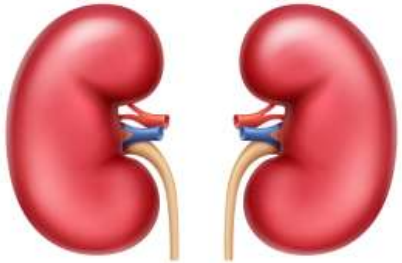
Born with too little oxygen – effects on brain, liver, gut ,kidney, immunity ?

Can it be corrected with colostrum-replacer ?

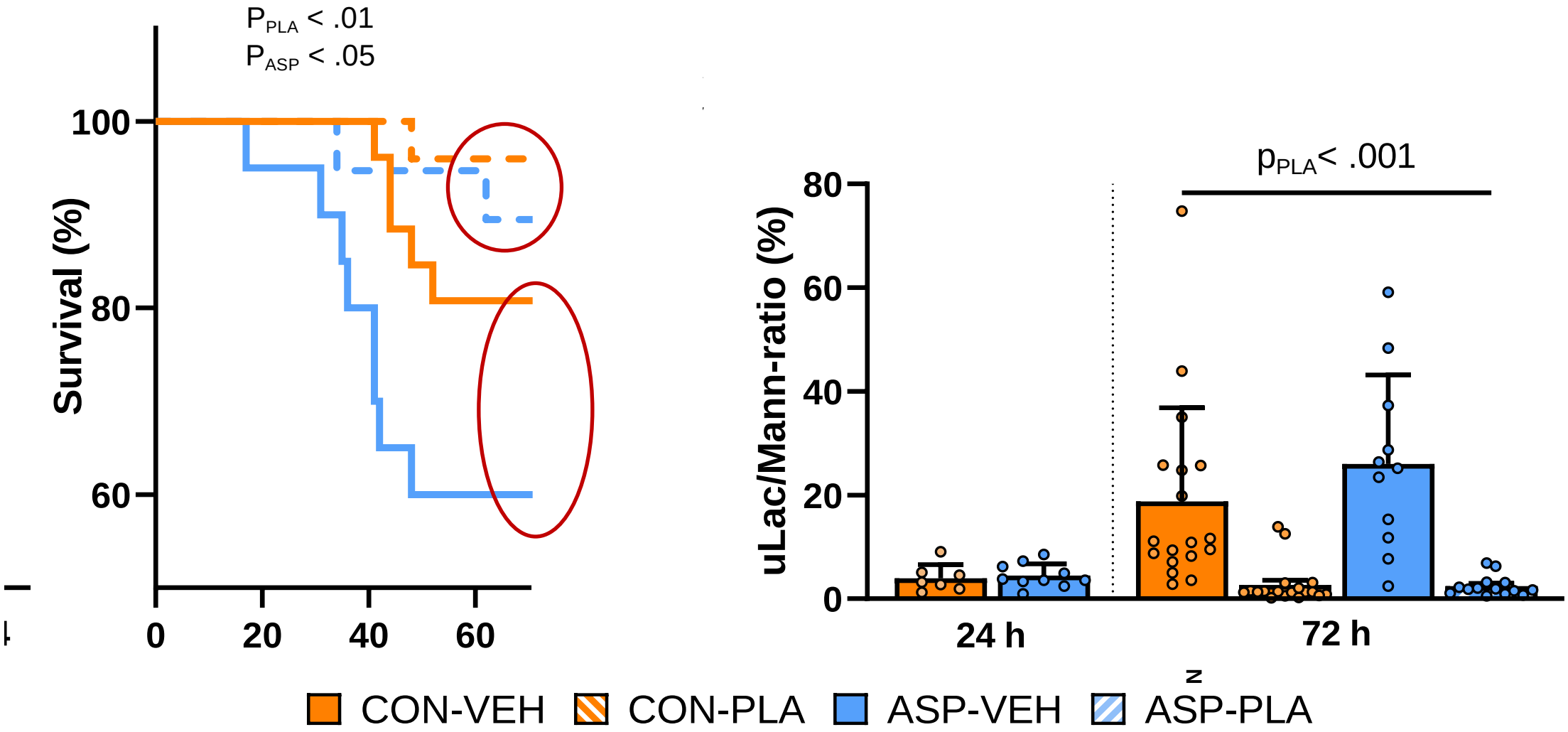








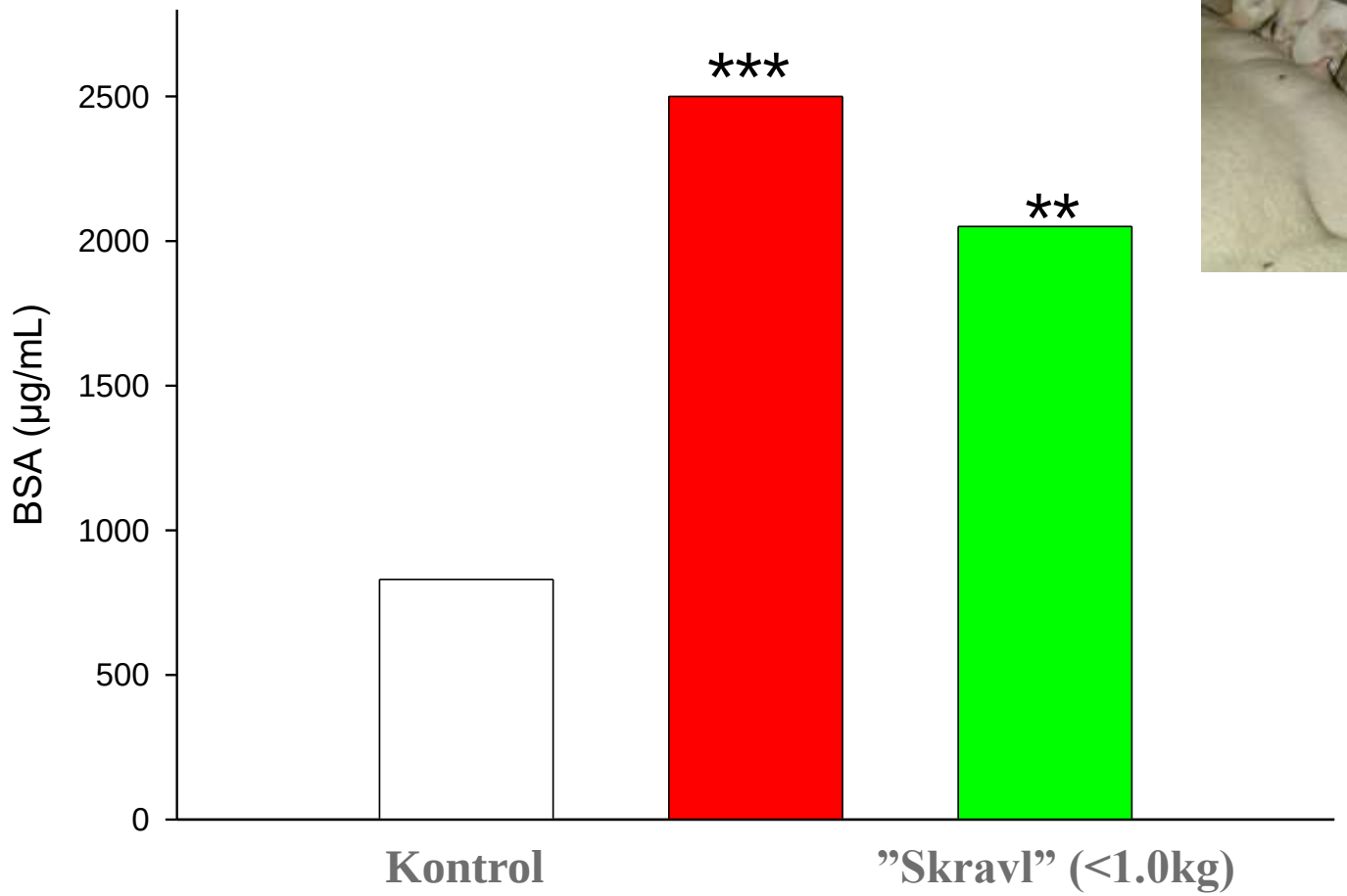
Colostrum-replacer improves survival and gut function



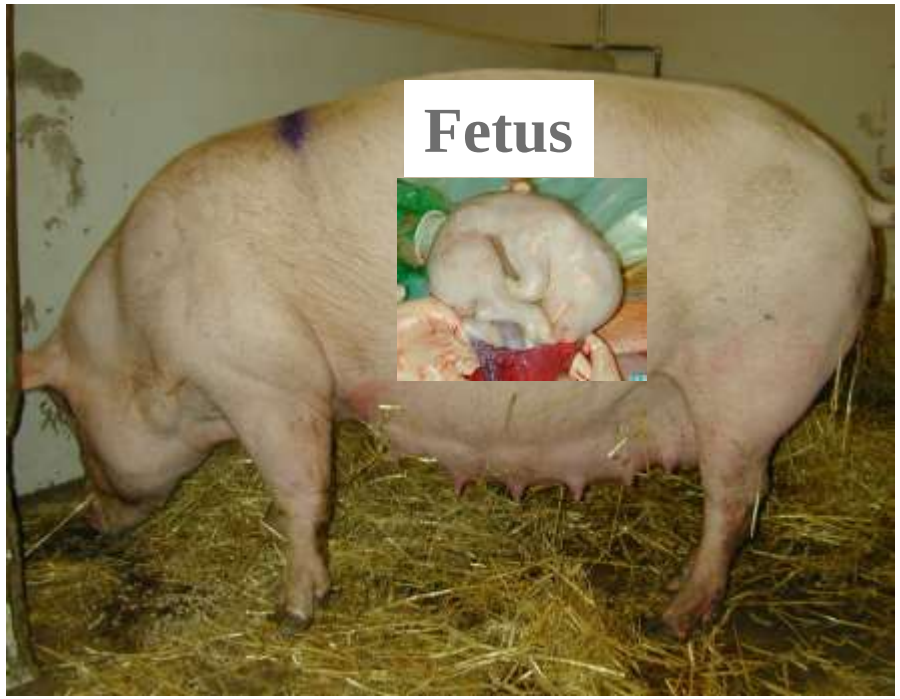
Nordsten et al., 2024

Small pigs have a well functioning gut

(Svendsen et al., 1990)



Other ways to improve survival ?



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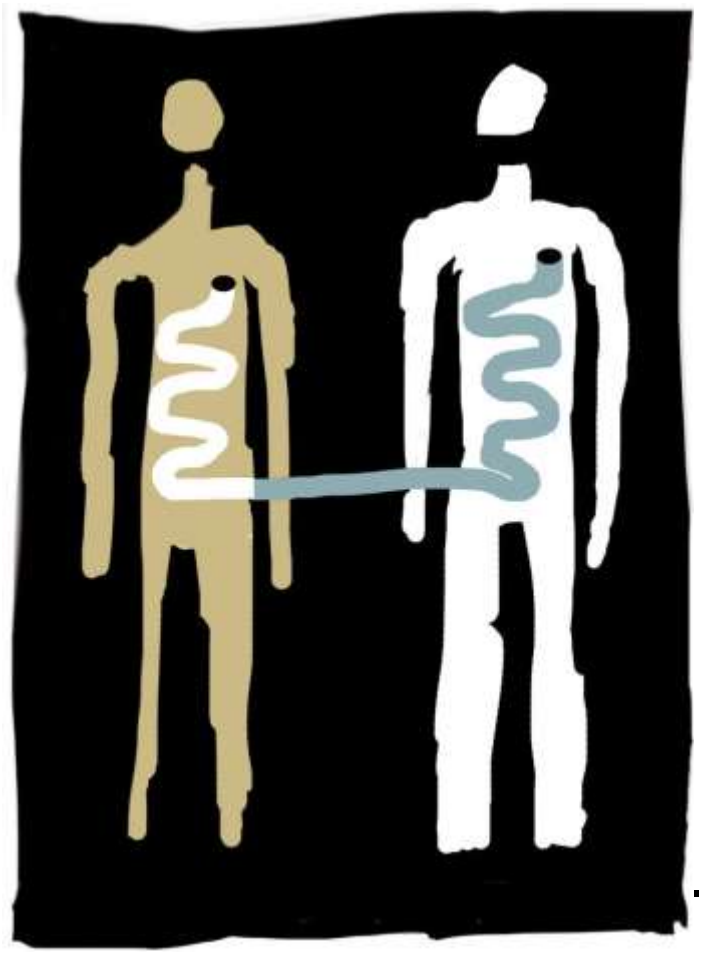
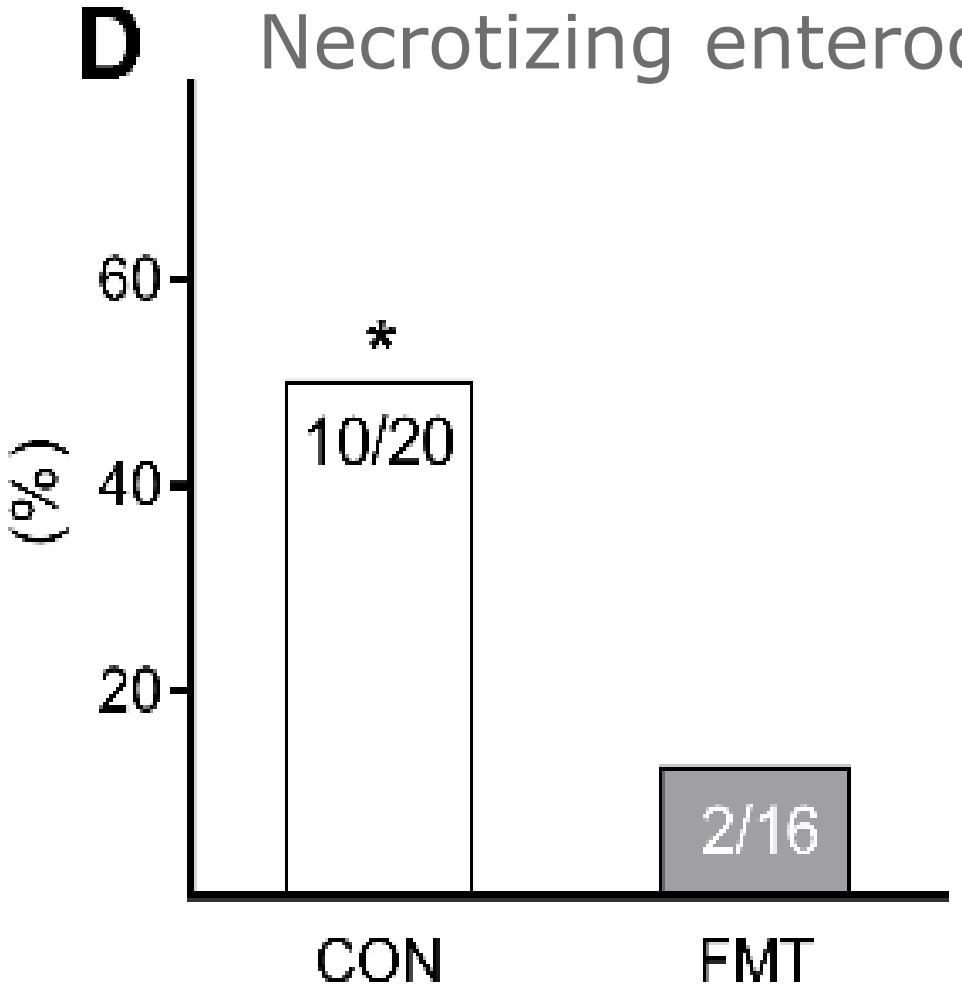
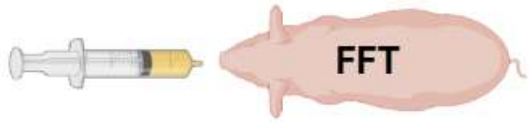




Brunse & Martin et al. 2018, ISME

Fecal filtrate transplantation under farming conditions

Sow feces as donor material



n=150
Postnatal filtrate inoculations

n=150
placebo

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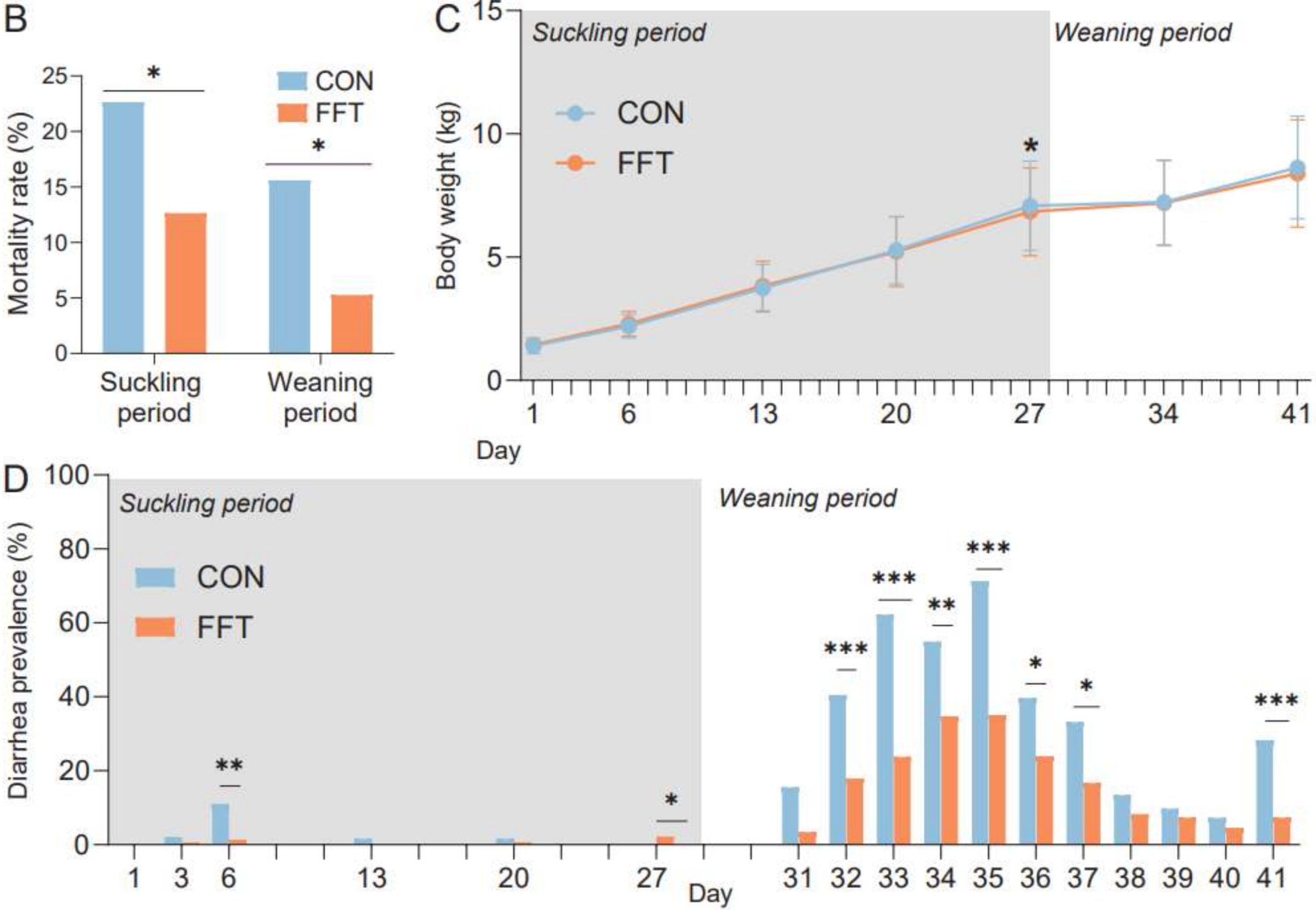
SEGES INNOVATION

Larsen et., unpublished



Larsen et al.,
publication in process

Conclusion and practical implications

- All pigs born alive have potential for survival
- Survival can only be fundamentally improved with transient external rearing
- Born too early, born too little, born with too little oxygen, can partly be corrected with colostrum-replacer
- Fecal transplant requires further development

Thank you for your attention !