

Update on kittens' body weight record: a powerful tool to manage their health

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NeoCare

Néonatalogie des Carnivores
Reproduction et Elevage



Neocare Center – National Vet School of Toulouse

NeoCare

Néonatalogie des Carnivores
Reproduction et Elevage



NeoCare : a team

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NeoCare : vet students working with us



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CELLARD



Jeanne
DAFFLON



Roxane
DECLERCQ



Loïc
DEVAUX



Marine
FEDRY



Chloé
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Camille
LECOURTOIS



Baptiste
MORINIAUX



Julie
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Manon
PIEL



Joelle
QUERTINMONT



Louise
RIBARD



Emeline
SCHIEBEL



Amélie
TONIOLO



Camille
VIAUD



NeoCare, Breeders, Veterinarians



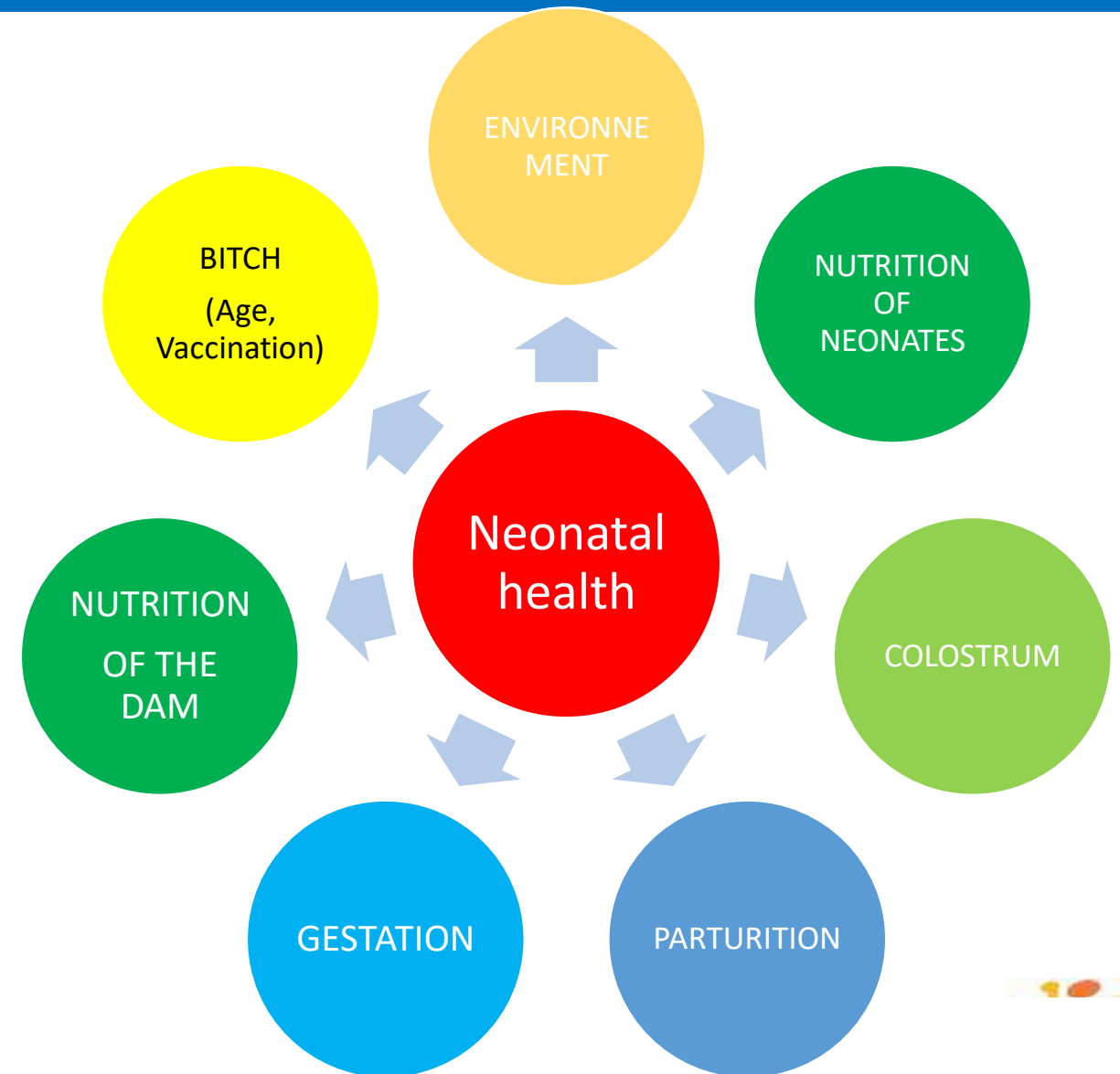
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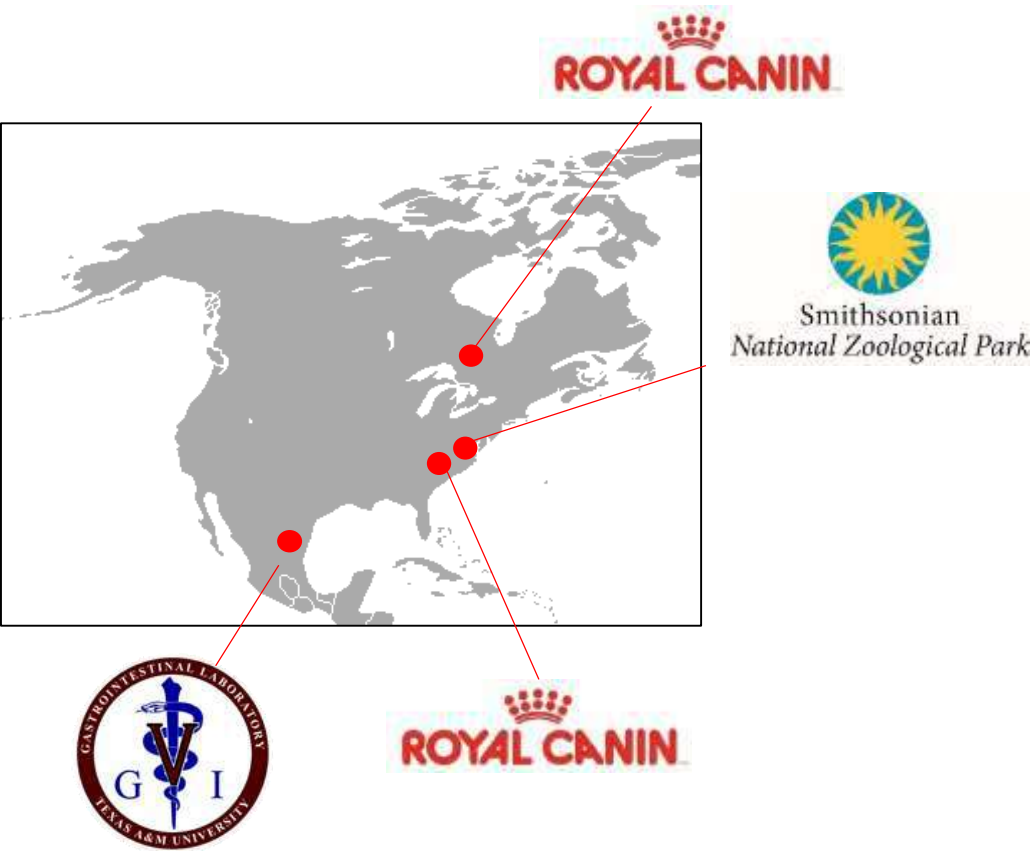
Clinical research

REPRODUCTION

Infectious diseases



Collaborations







Dr Amélie MUGNIER
PhD Student

ACADEMIA

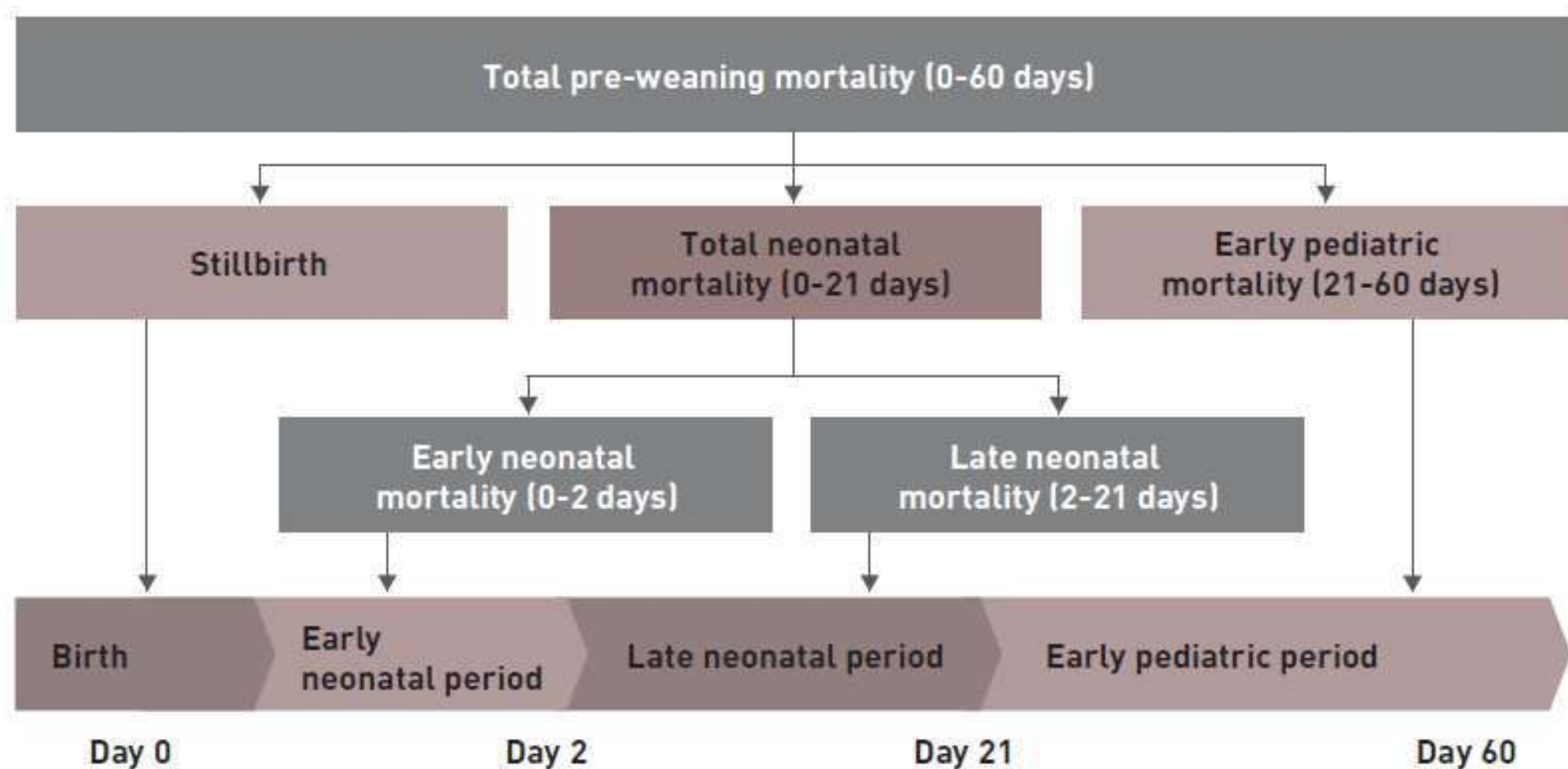


*Neonatal period in the cat :
Factors influencing birth weight and early growth*

Classification of neonatal mortality



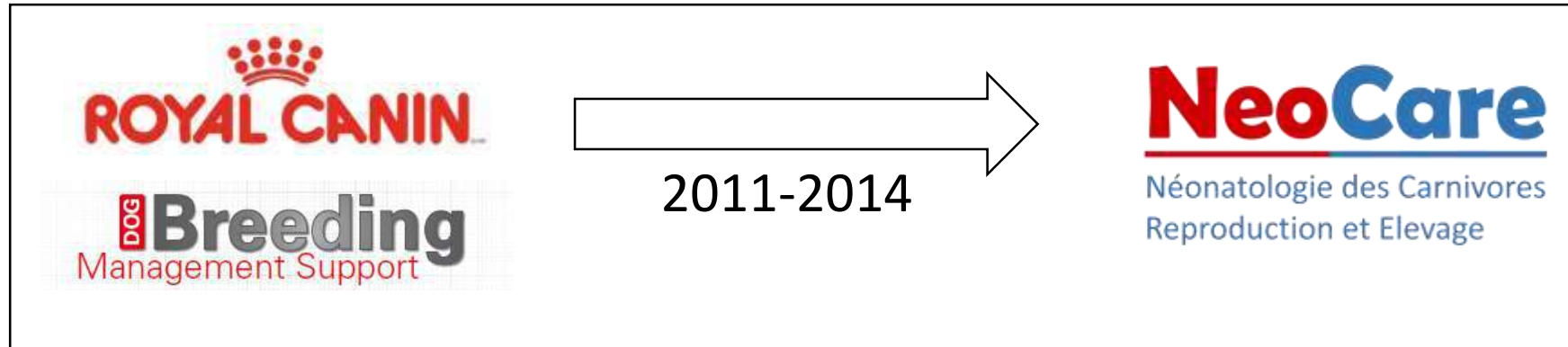
Definition of neonatal mortality between birth and 2 month of age



Neonatal mortality is it frequent ?



Large study on mortality in kittens



1521 catteries

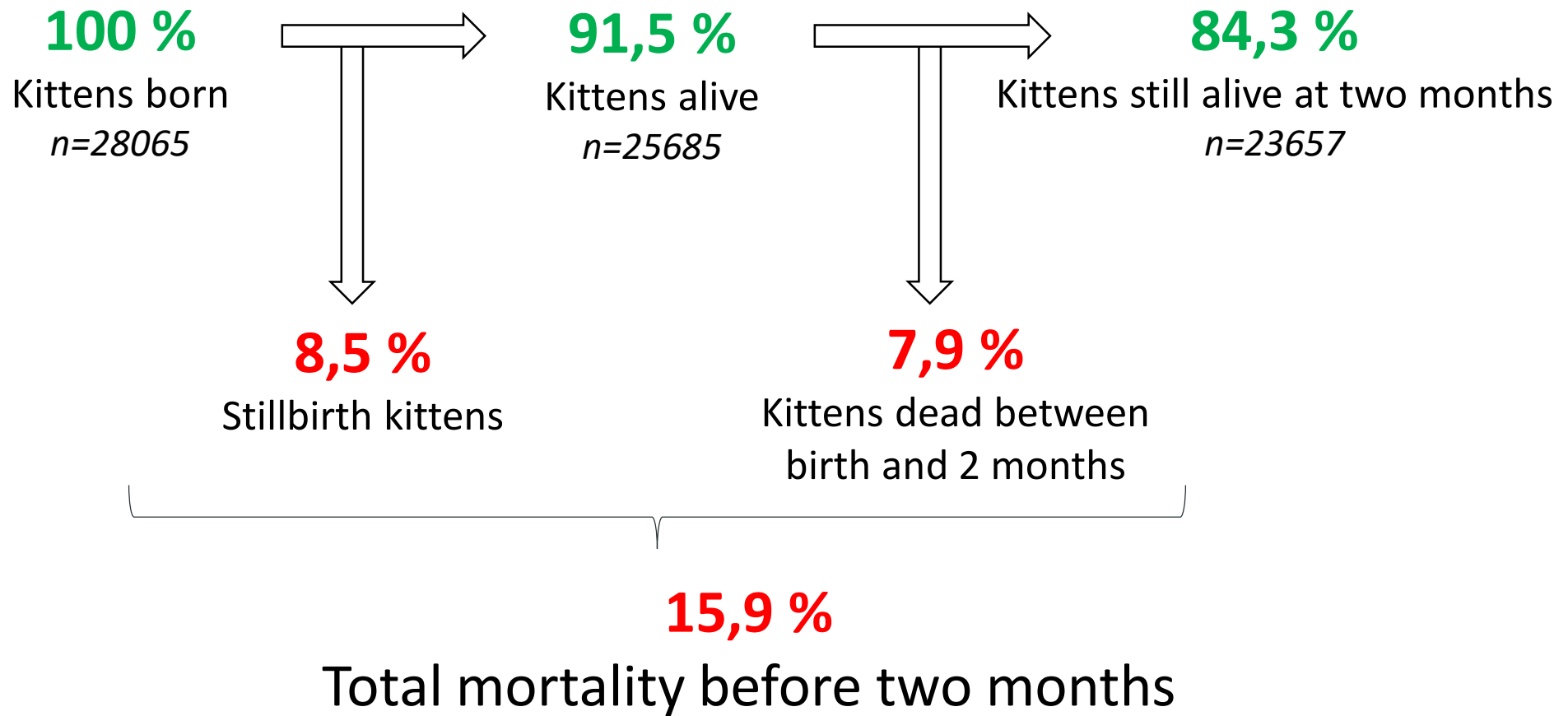


5303 queens
45 breeds

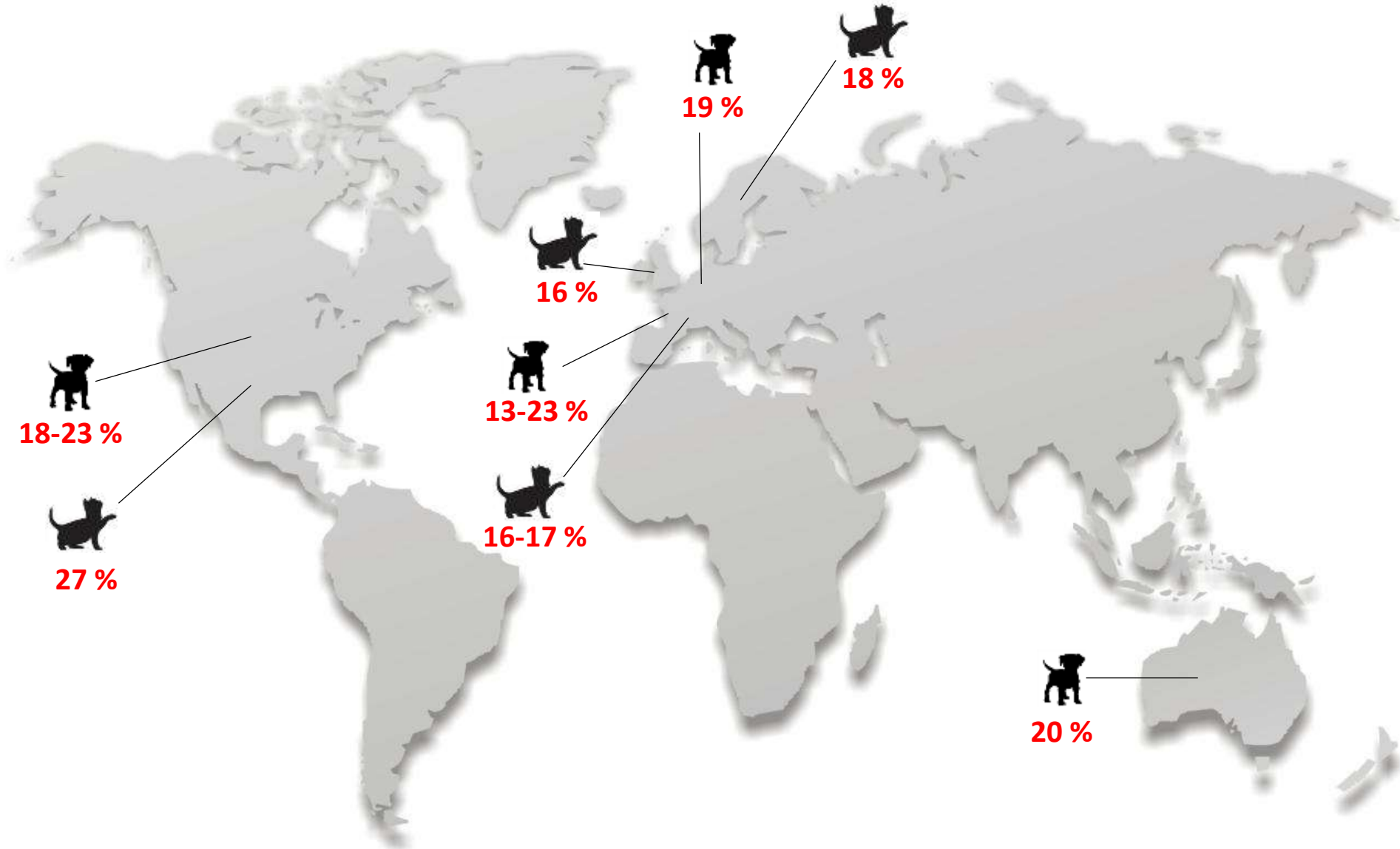


28065 kittens
7050 litters

Neonatalo mortality is high in kittens



Neonatal mortality is high in kittens like in puppies



Our goal

Try to detect simple and useful
tools to predict neonatal mortality



Birth weight and early growth : one of this tool

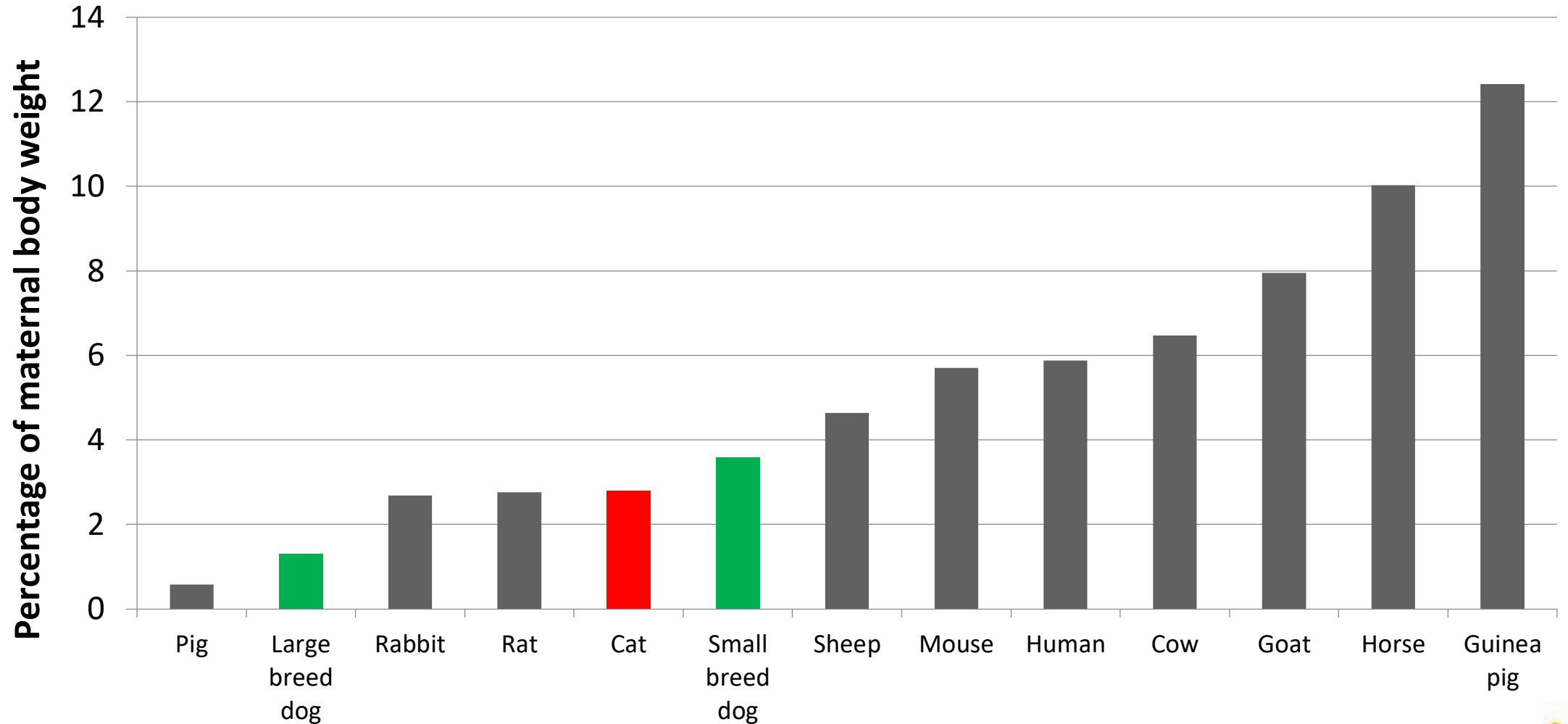


What we learned ?

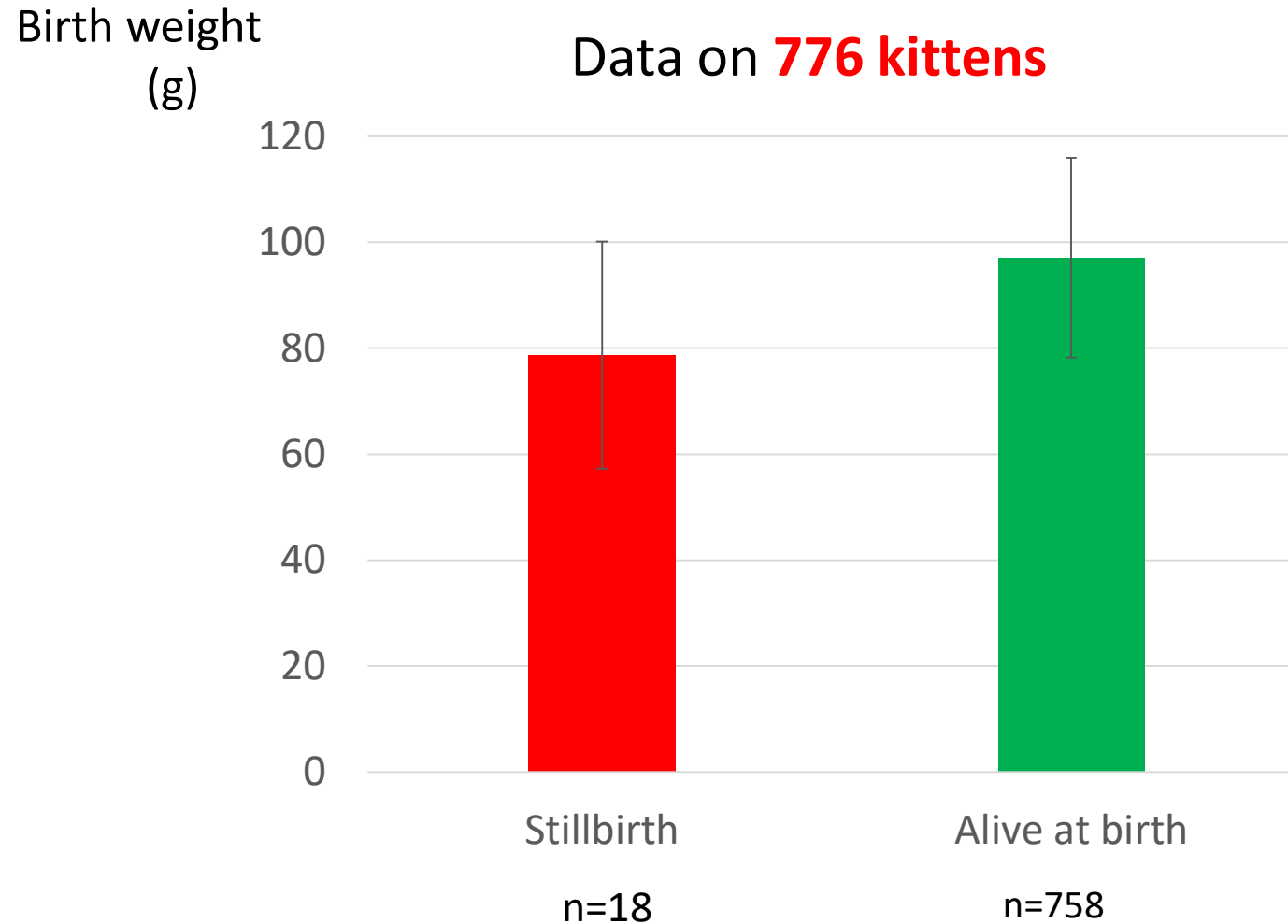
Birth weight

Early Growth

Kittens present a very low weight at birth (compare to their adult body weight)



Birth weights of stillbirth kittens and kittens alive at birth are different



Preliminary results

Factors during gestation



Birth weight



Stillbirth

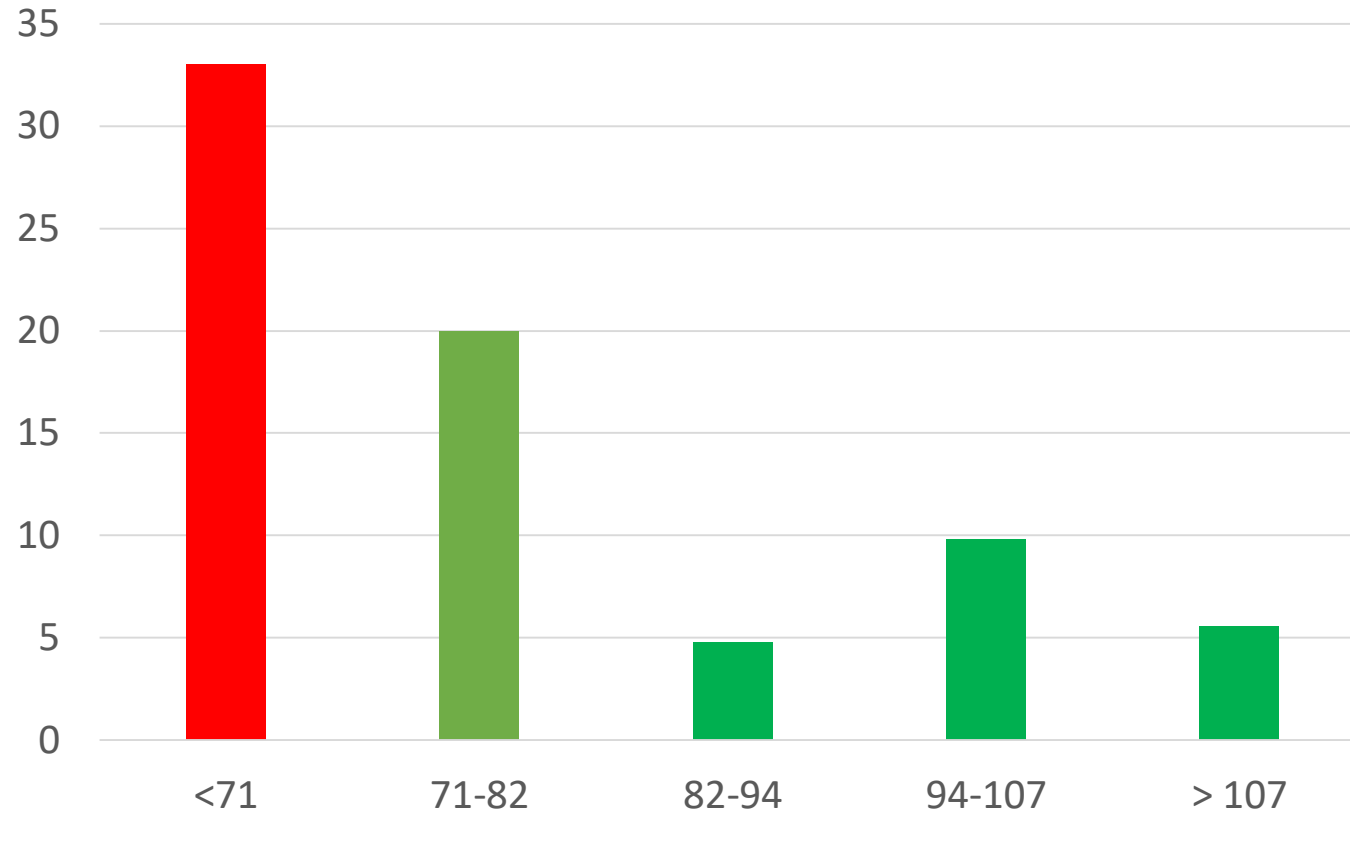
How nutrition can influence breeding performances in cat ?

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Birth weights influence risk of mortality between birth and two months

Mortality (%)



n = 235 kittens

Birth weight

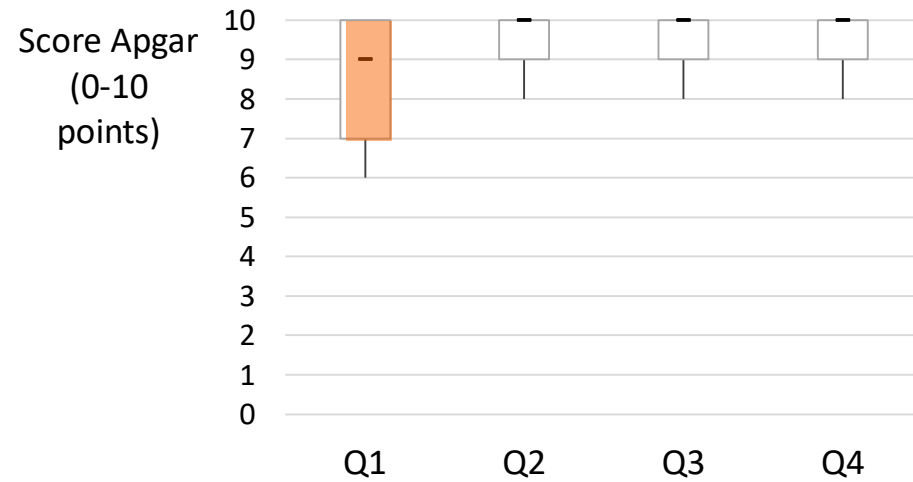


Mortality
0-2 months

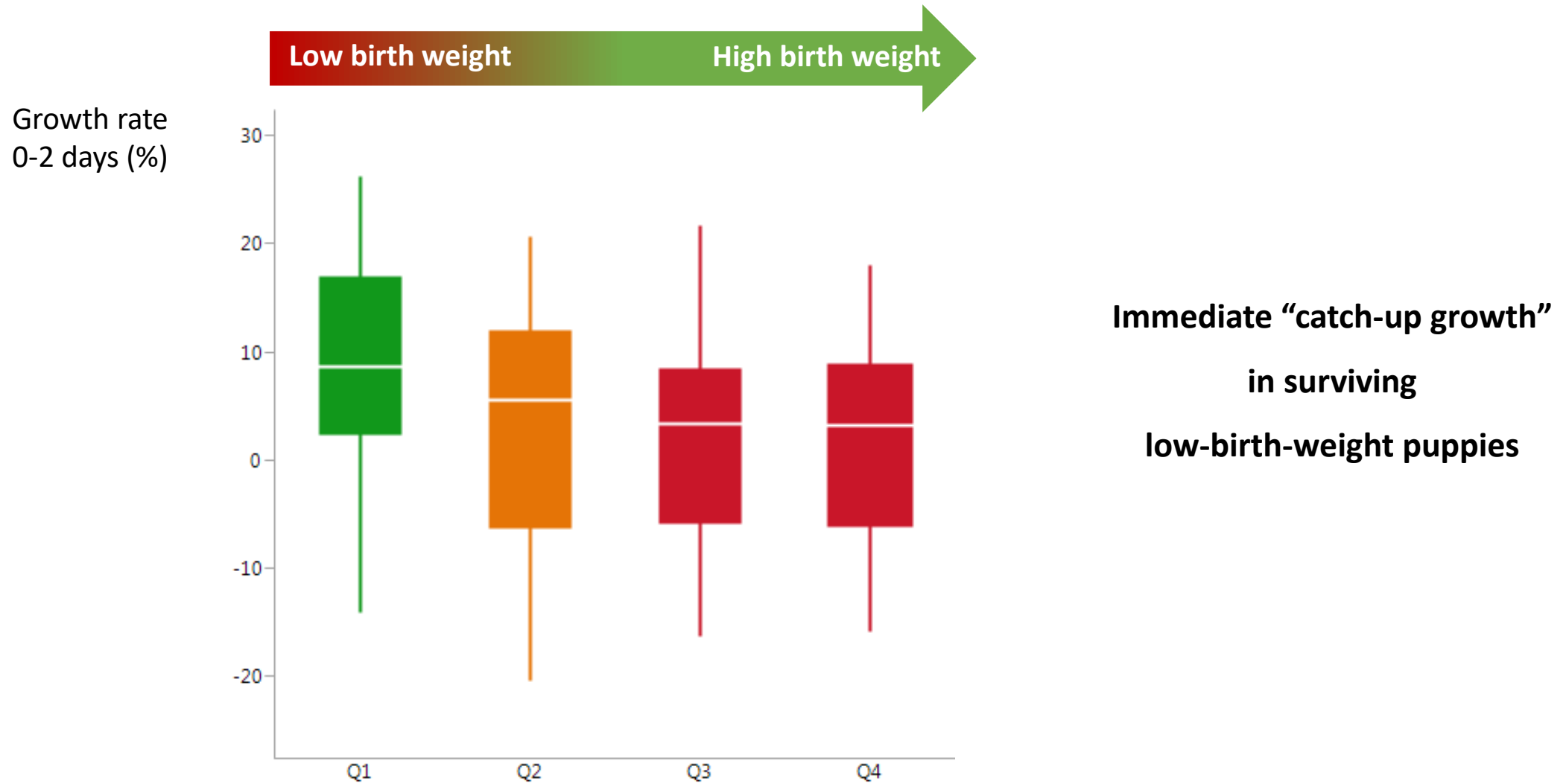
Birth weight
(g)

Low birth weigh neonates are very particular

In puppy



And what happens if they survive?



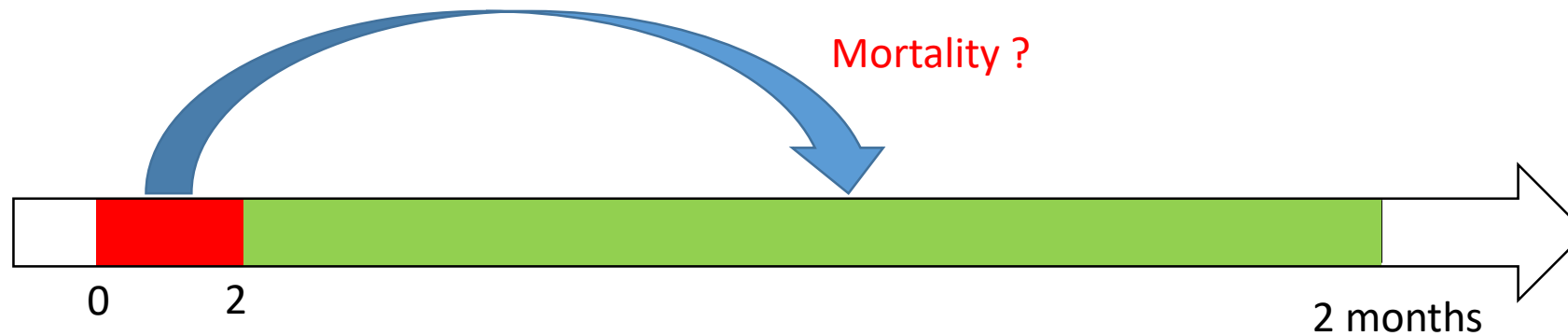
Birth weight

Early Growth

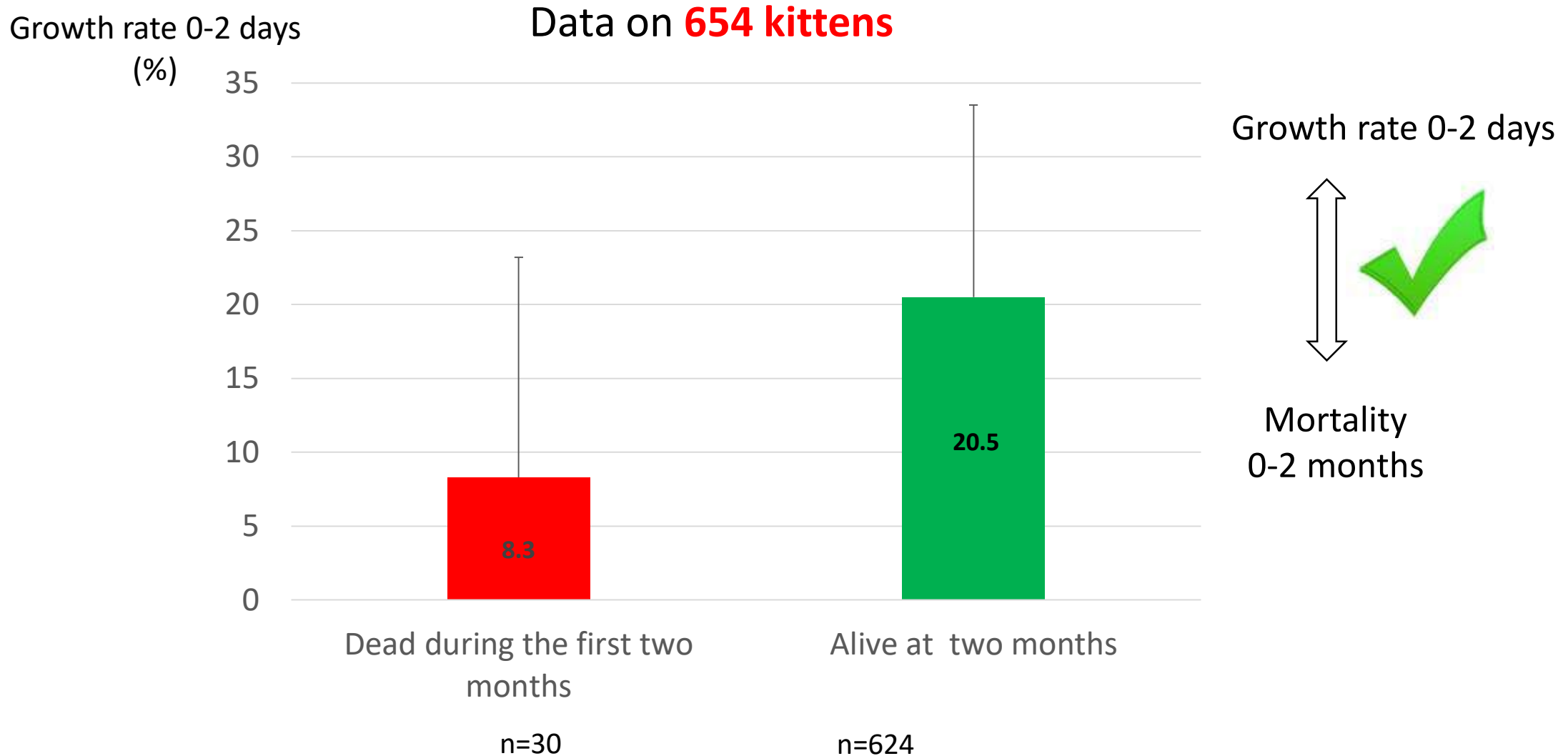
Growth rate 0-2 days

Growth rate between birth and 2 days

$$\text{Growth 0-2 days} = \frac{\text{Birth weight} - \text{birth at two days}}{\text{Birth weight}}$$



Growth rate 0-2 days influence neonatal mortality



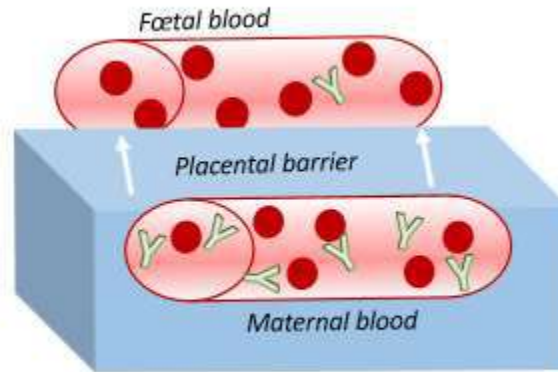
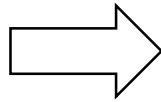
Growth rate reflect the colostrum ingestion



Colostrum intake



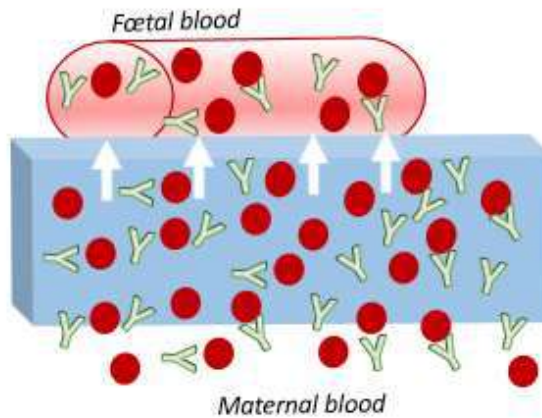
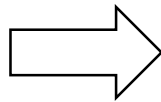
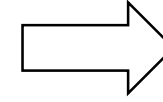
Colostrum ingestion is crucial for neonatal health



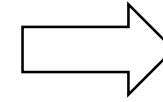
Limited IgG transfer during gestation in dog

% of total immunity acquired during gestation

10 %

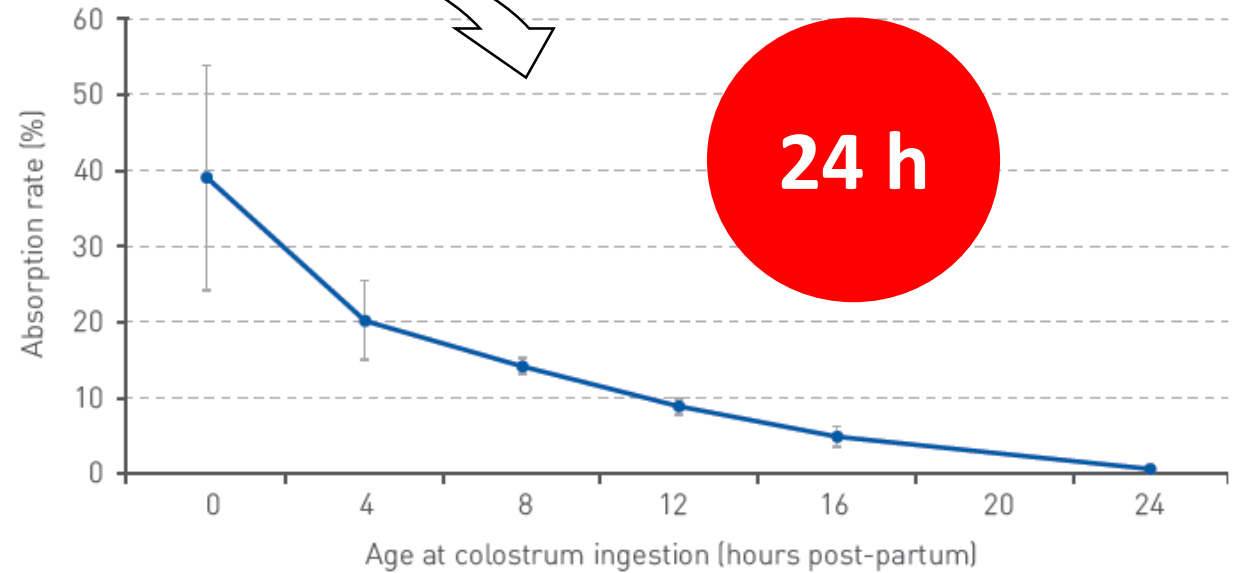
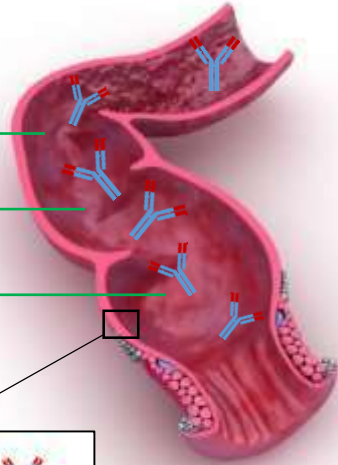
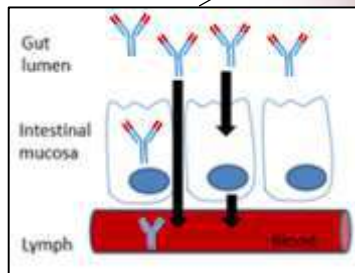
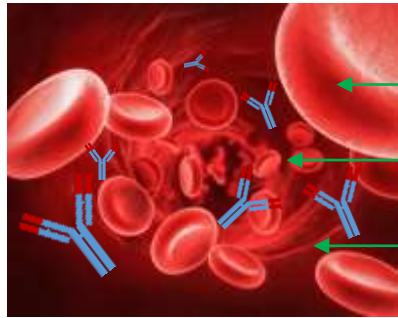


90 %



Passive immune transfer only during the first 24 hours of life

Timing is important



Correlation between early growth rate and IgG concentration

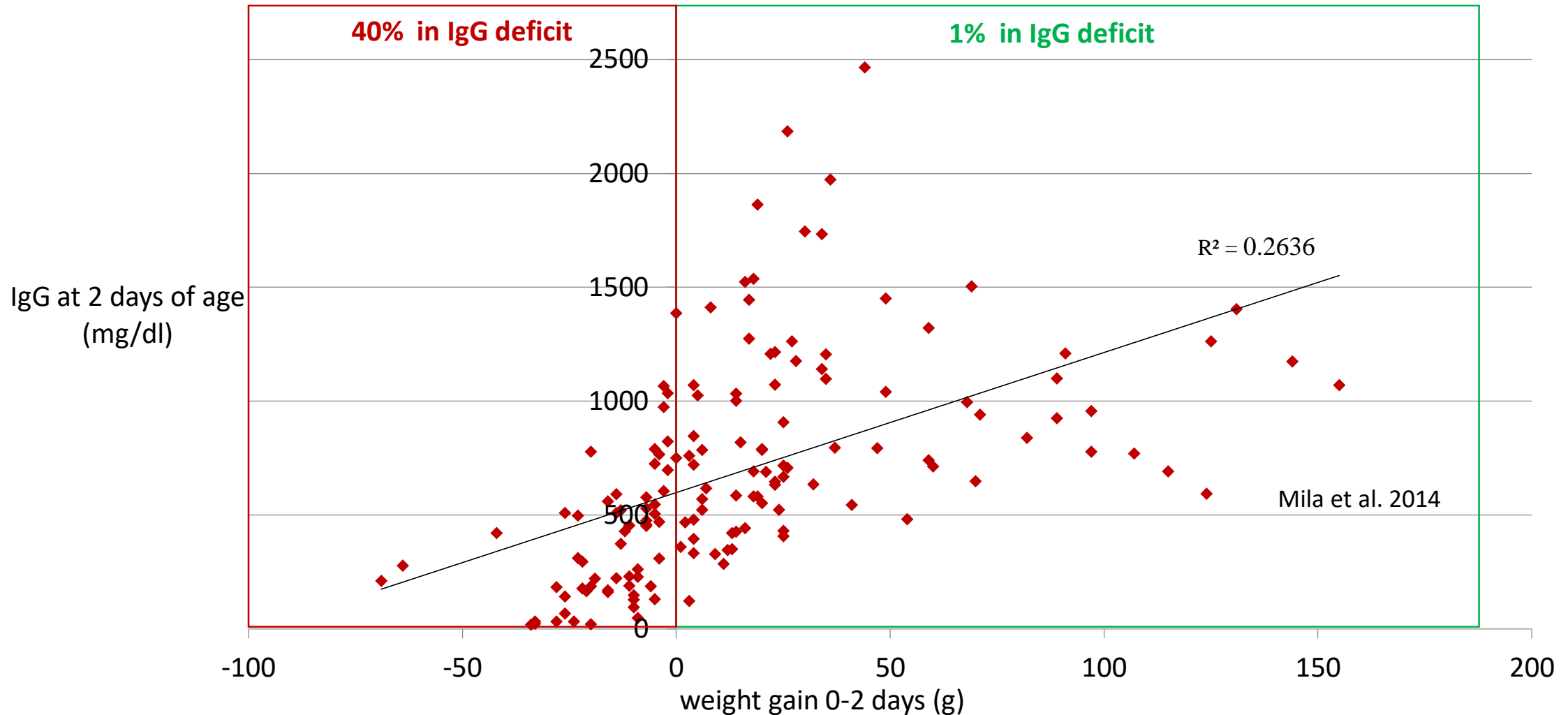


Illustration of immunity gap

Take home message

- Low birth weight kittens are at risk of death
- Kittens with a negative growth rate are at risk of death
- Growth rate reflect the colostrum intake



So what to do in practice ?



Good practice

Birth weight

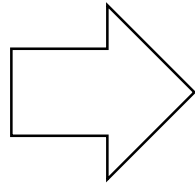


Stimulate colostrum intake



Good practice

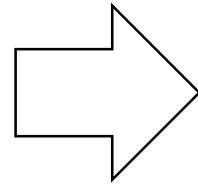
Birth at two days



Evaluation of growth rate

Good practice

- Low birth weight
- Negative growth rate

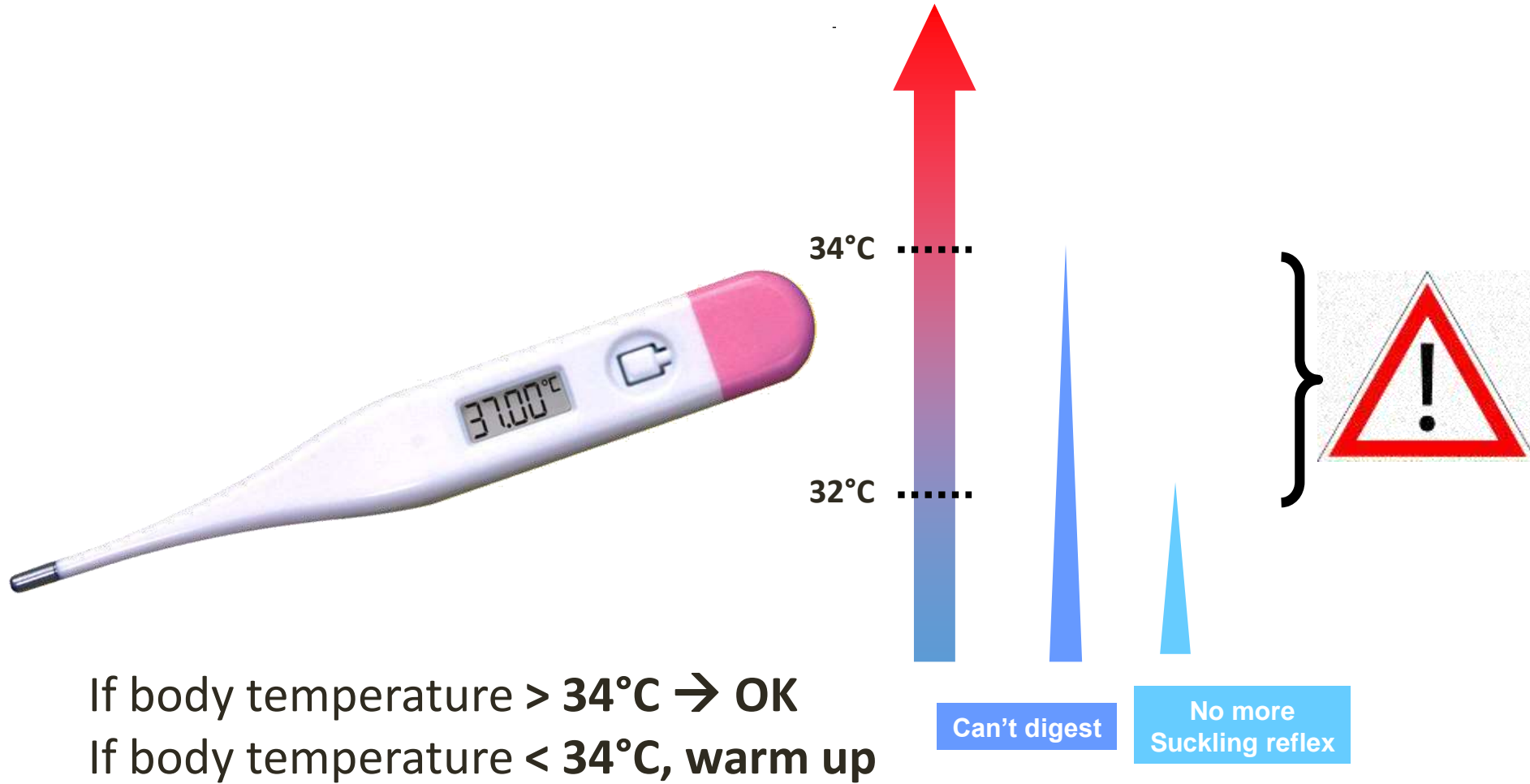


Supplementation with a milk replacer

What to do before feeding ?



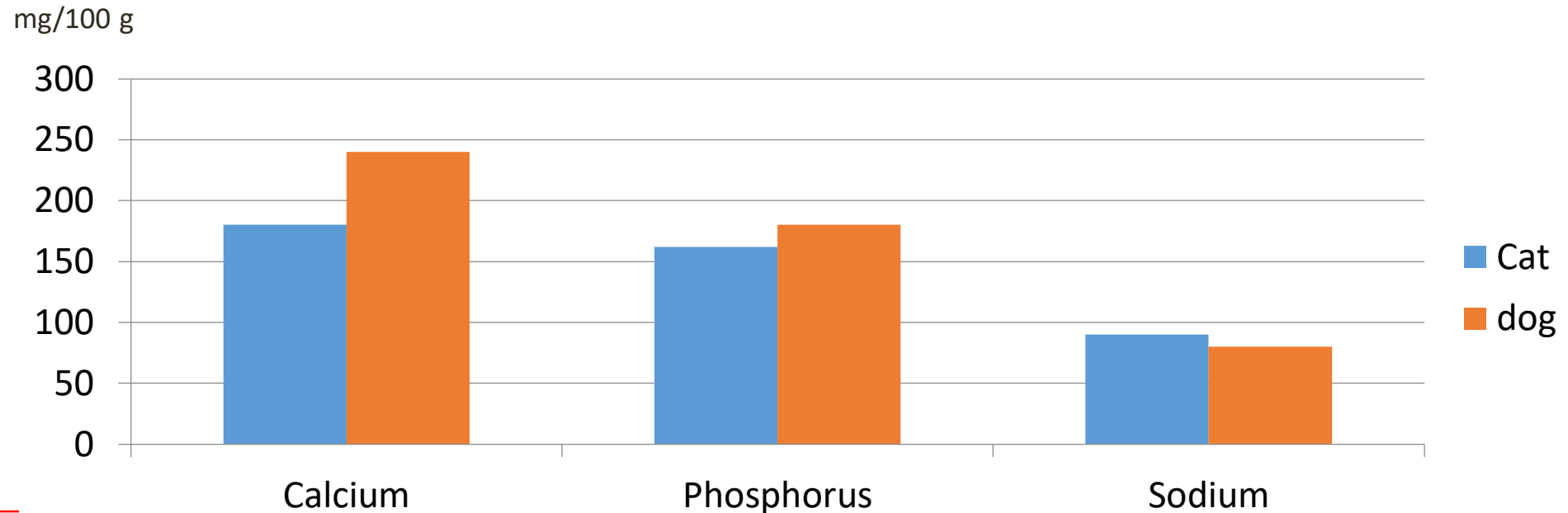
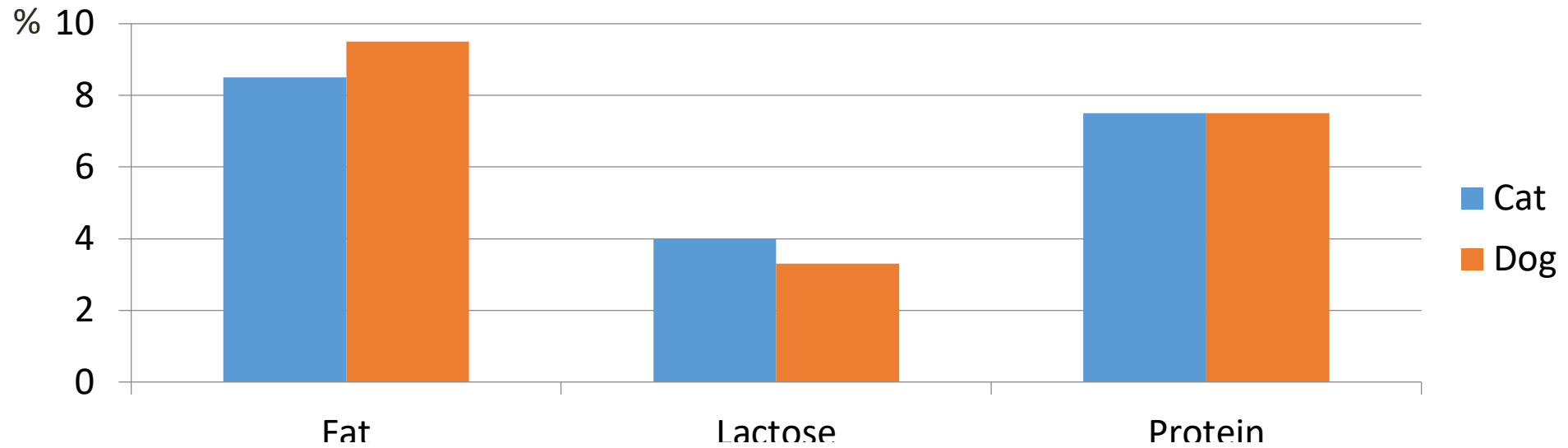
Check the kittens' rectal temperature before meals



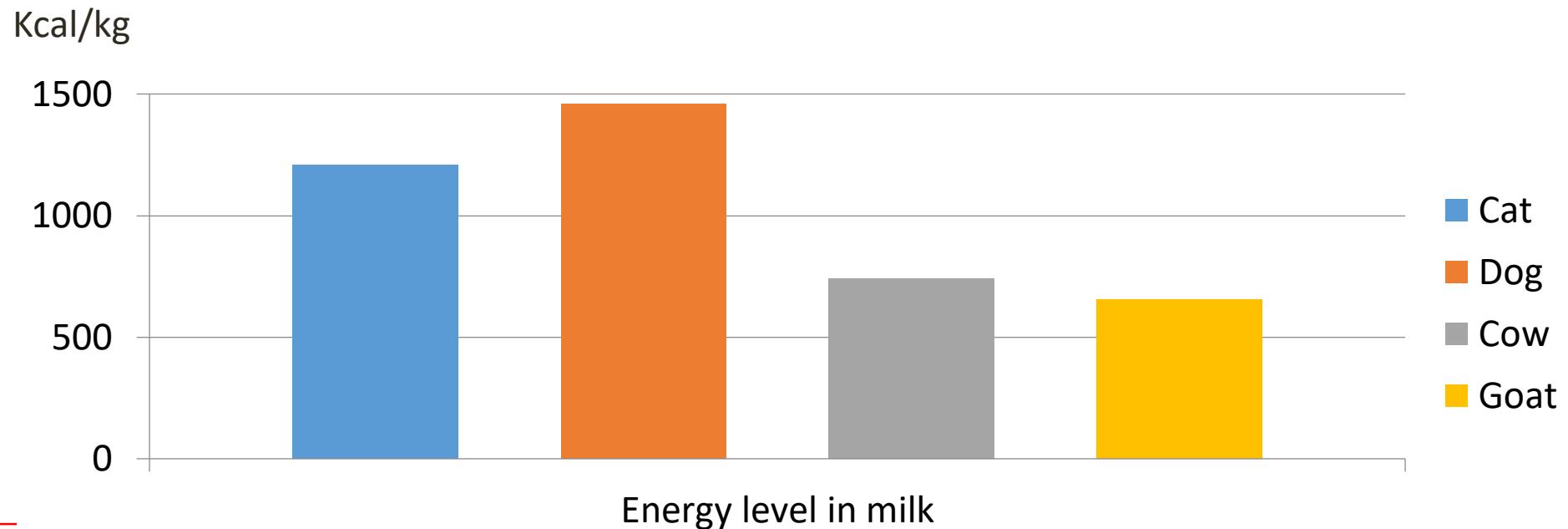
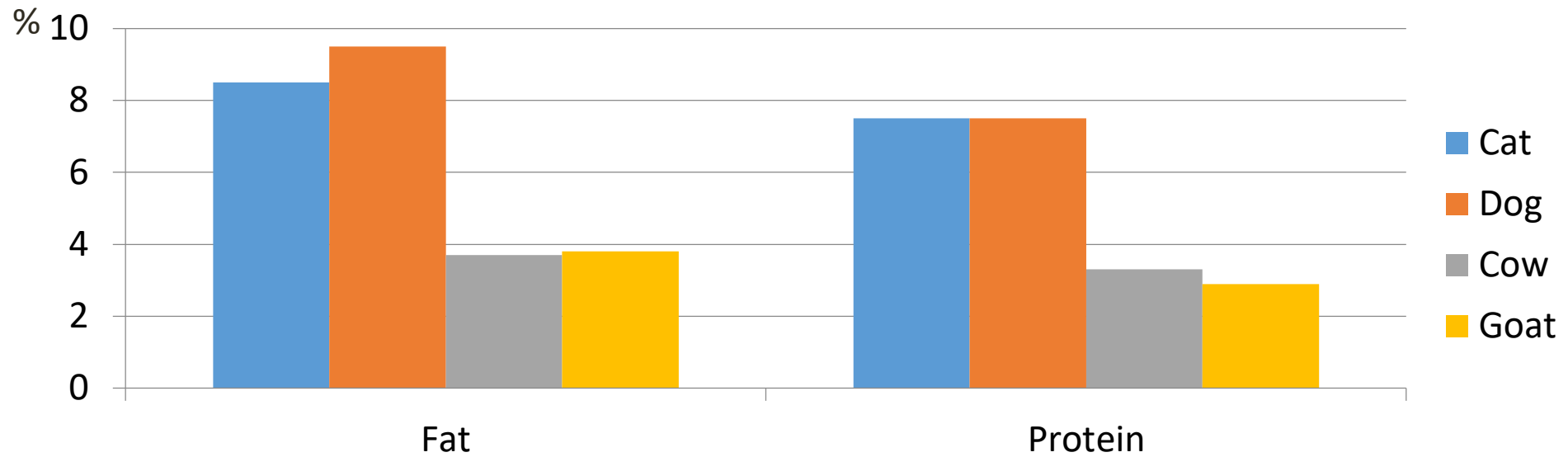
Which milk replacer ?



Composition of dog and cat milks are very close

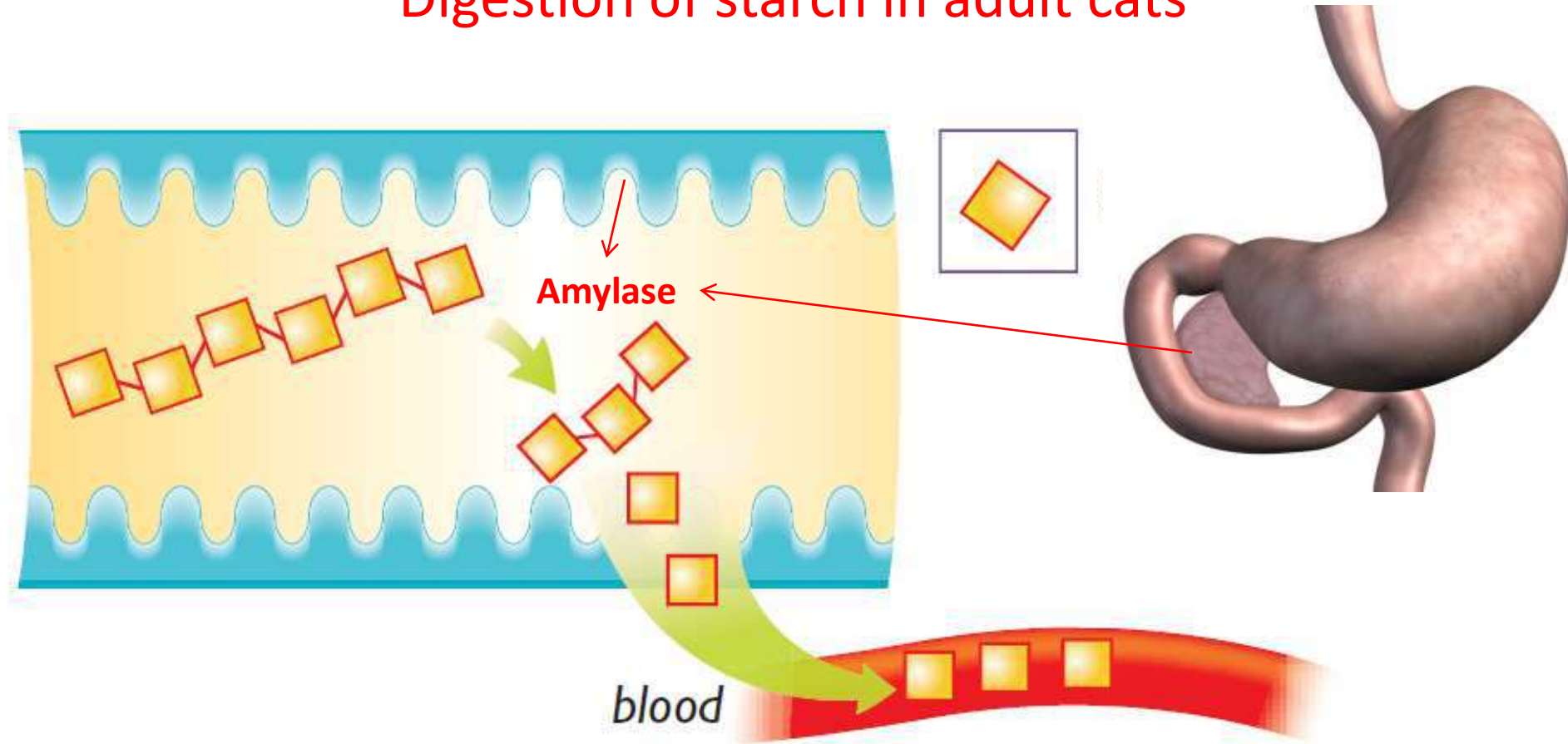


Composition of dog and cat milk is different from cow and goat milk

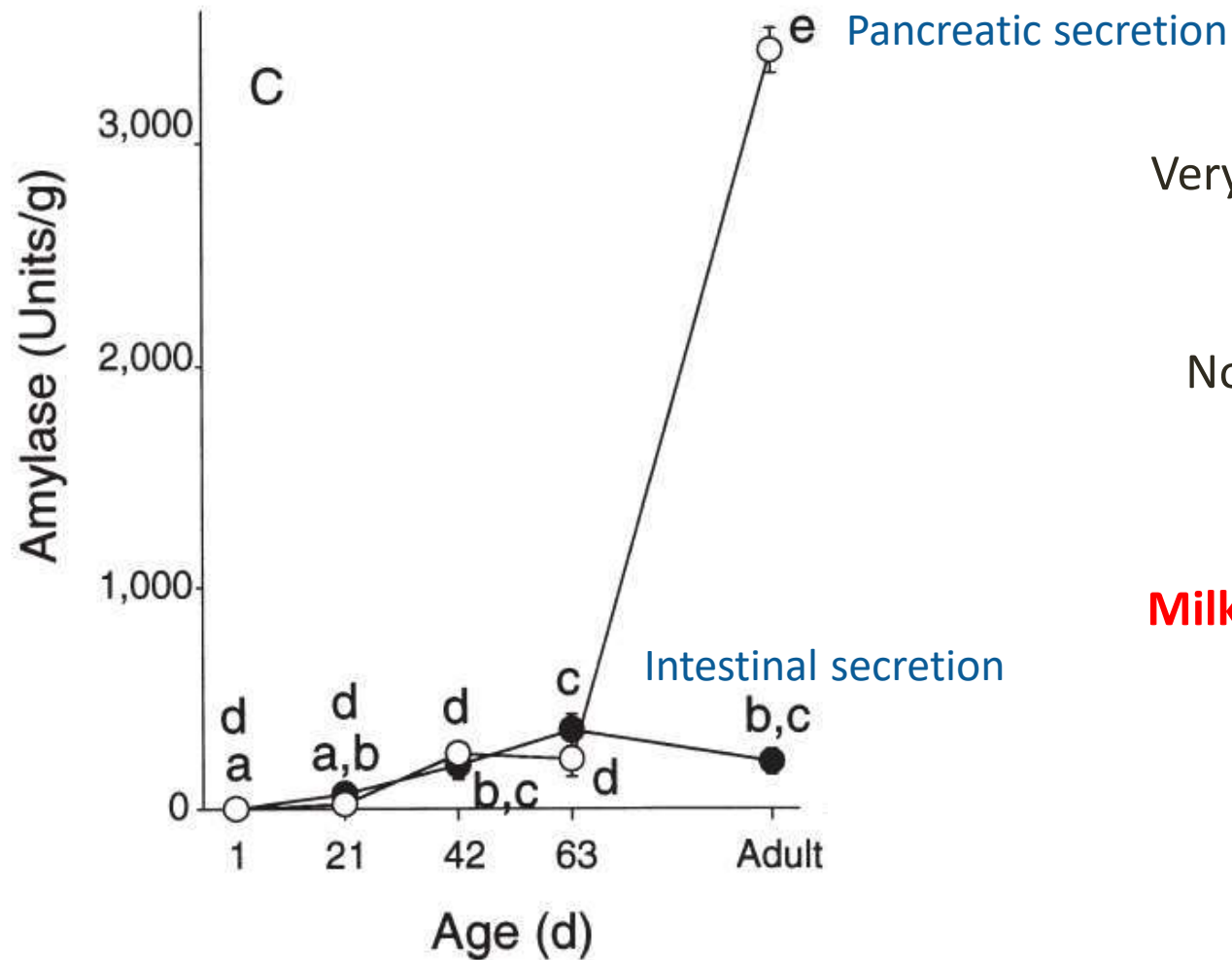


In adult cats starch is digested by amylase

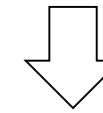
Digestion of starch in adult cats



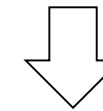
Neonates don't have amylase during the first 3 weeks of life



Very low level of amylase



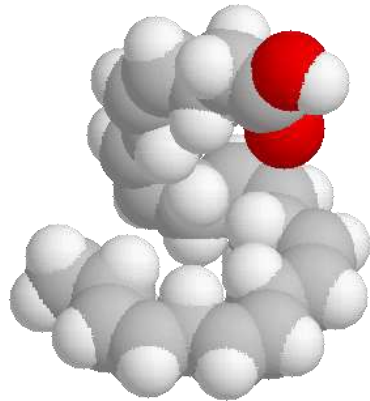
No digestion of starch



Milk replacer must not contain starch

Buddington et al. Activities of gastric, pancreatic, and intestinal brush-border membrane enzymes during postnatal development of dogs. AJVR, 2003, 64 (5) 627-634.

Addition of DHA has shown benefic effects on the brain and retinal functions




Bauer JE et al. Retinal Functions of Young Dogs Are Improved and Maternal Plasma Phospholipids Are Altered with Diets Containing Long-Chain n-3 Polyunsaturated Fatty Acids during Gestation, Lactation, and after Weaning J. Nutr. 136: 1991S–1994S, 2006.

How often ?



Check meals regularity & amount consumed




AGE


Semaine / week


Woche / semana


settimana / veckor




X







ADULT AGE



1

2

3

4

MINI	MEDIUM	MAXI	GIANT
1-10kg ⁽²⁾	11-25kg	26-44kg	>45kg
3-10 ml ⁽³⁾	5-20 ml	10-25 ml	15-35 ml
10-30 ml	15-50 ml	30-70 ml	40-80 ml
20-50 ml	35-90 ml	60-120 ml	85-125 ml
25-60 ml	45-125 ml	90-170 ml	120-190 ml

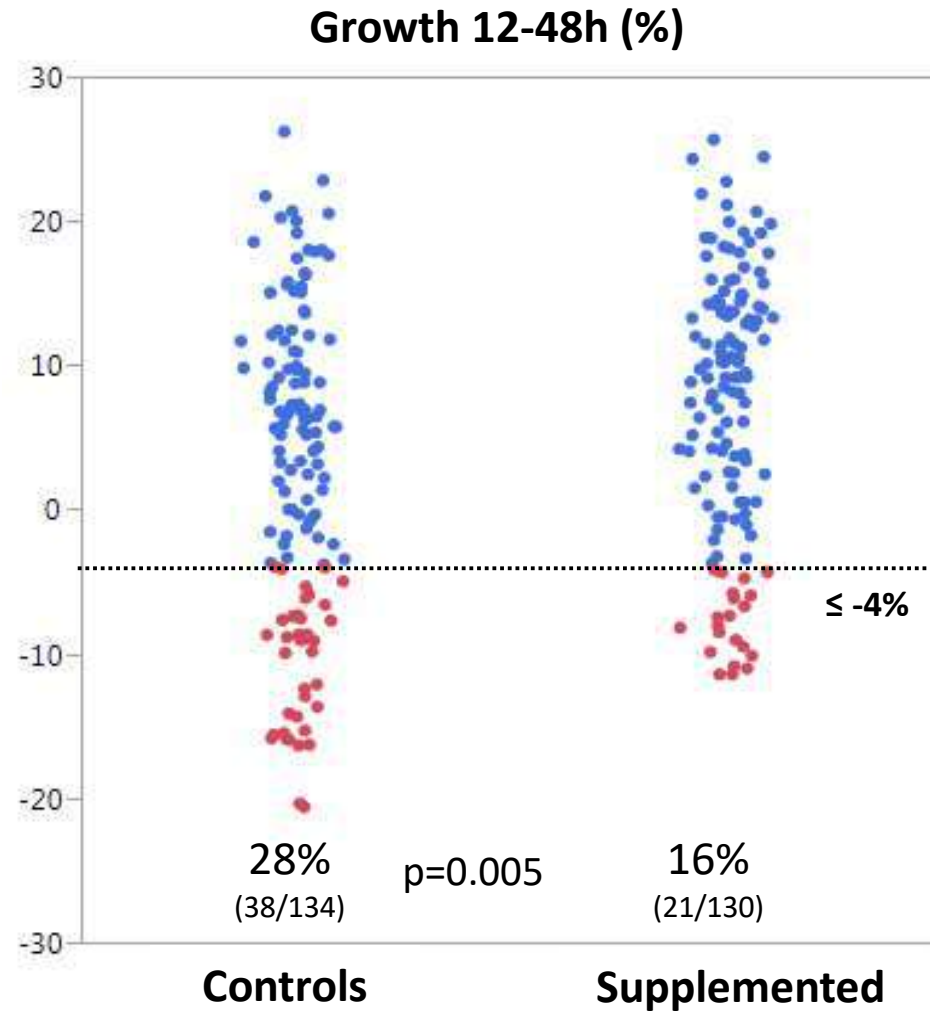
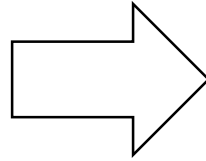
(1) uge / uke / viikossa / tydzień / hét / неделя / тиждень / 週 / 周

(2) кг / 千克

(3) мл / 毫升

Significant decrease of neonates at risk in case of supplementation

Six administrations between 12 and 48h:
1.5 ml/ 100gbw every 6-8h



How to give the milk ?



Bottle feeding and tube feeding (used by vet in case of emergency) are two technics to feed neonates



Using spoons and droppers to feed kittens and puppies is dangerous because the limited gag reflex of these animals easily permits aspiration of formula into the lungs.



What to do after ?



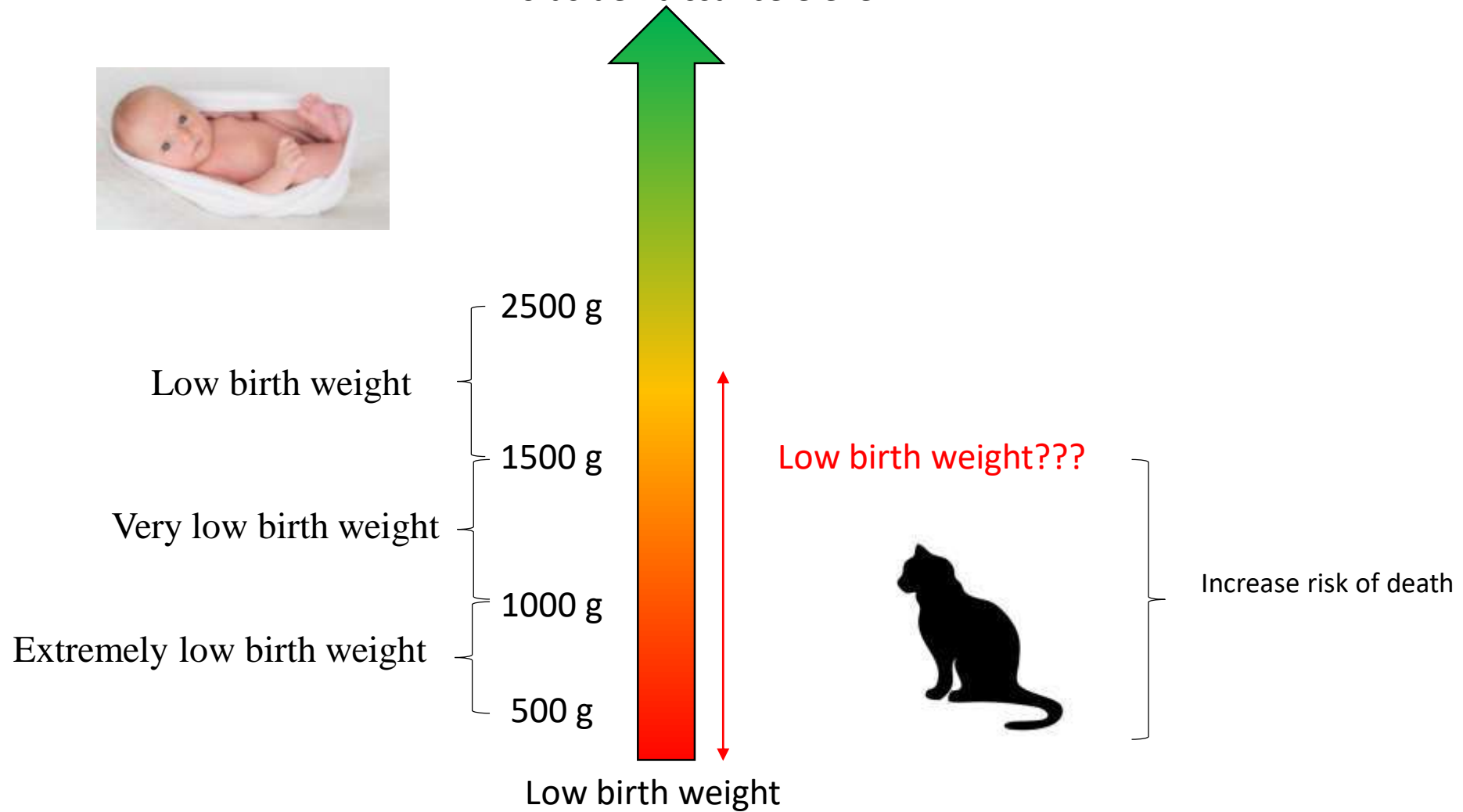
Don't forget to stimulate the perineum



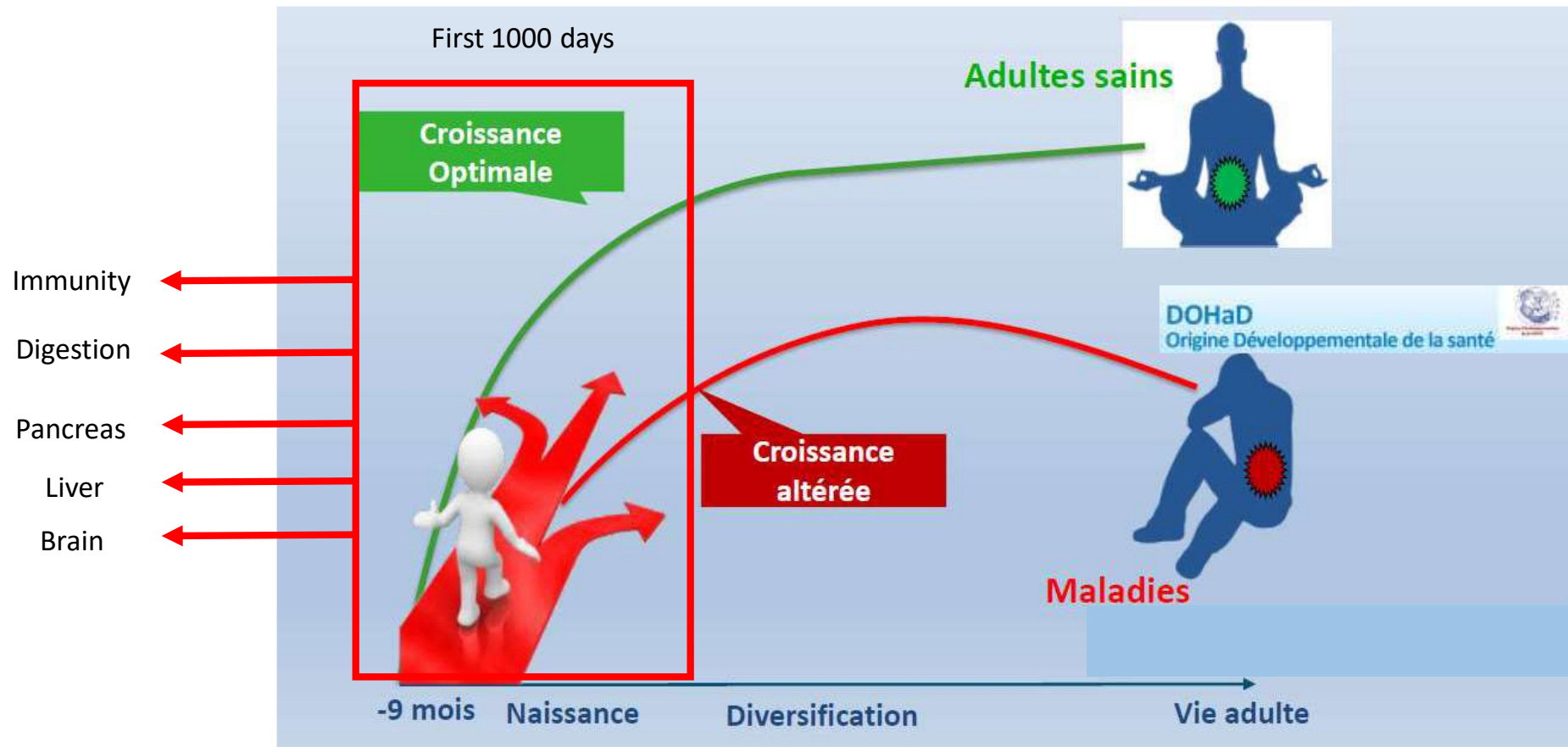
In the next steps what we are doing ?



Objective threshold of low birth weight



Fœtal programming



Help us to define an optimal growth in kittens

Dear Madame /Sir,

The research interests of the Reproduction Unit of the National Veterinary School of Toulouse (France) are in growth and in risk of mortality in kittens from birth until weaning. We have two objectives:

- to build standard growth charts describing growth between birth and two months in kittens of each breed
- to evaluate the impact of kitten's birth weight and growth during the first two months of life on risk of obesity, disease or mortality in each breed until adult life.

Results obtained from this questionnaire will provide you and other breeders with a useful tool in the monitoring kittens' health as well as in the early detection of kittens at a risk of death.

Which kind of information do we need?

If you weigh your kittens (regardless of the age at weighing and weighing frequency), we would be interested in your registered data. In addition to weight, the information useful for us are: the breed of kitten (kittens should be purebred), date of birth, and if possible the main characteristics of the litter (i.e. number of kittens). Even if the kitten died before two months of age, we are still interested by its birth weight and data on growth. If you register the microchip number and address of the new owner, we will be interested in this information too. We could contact the owner to get some information concerning current weight of the kitten or its adult bodyweight.

If you wish to participate in our study, please fill up the survey attached below and send it back together with your data on growth.

All your litters born after 2005 are of interest.

How to send us your data?

The easiest way for you: scan, photo, excel document, paper sheets....

You can send us these data via

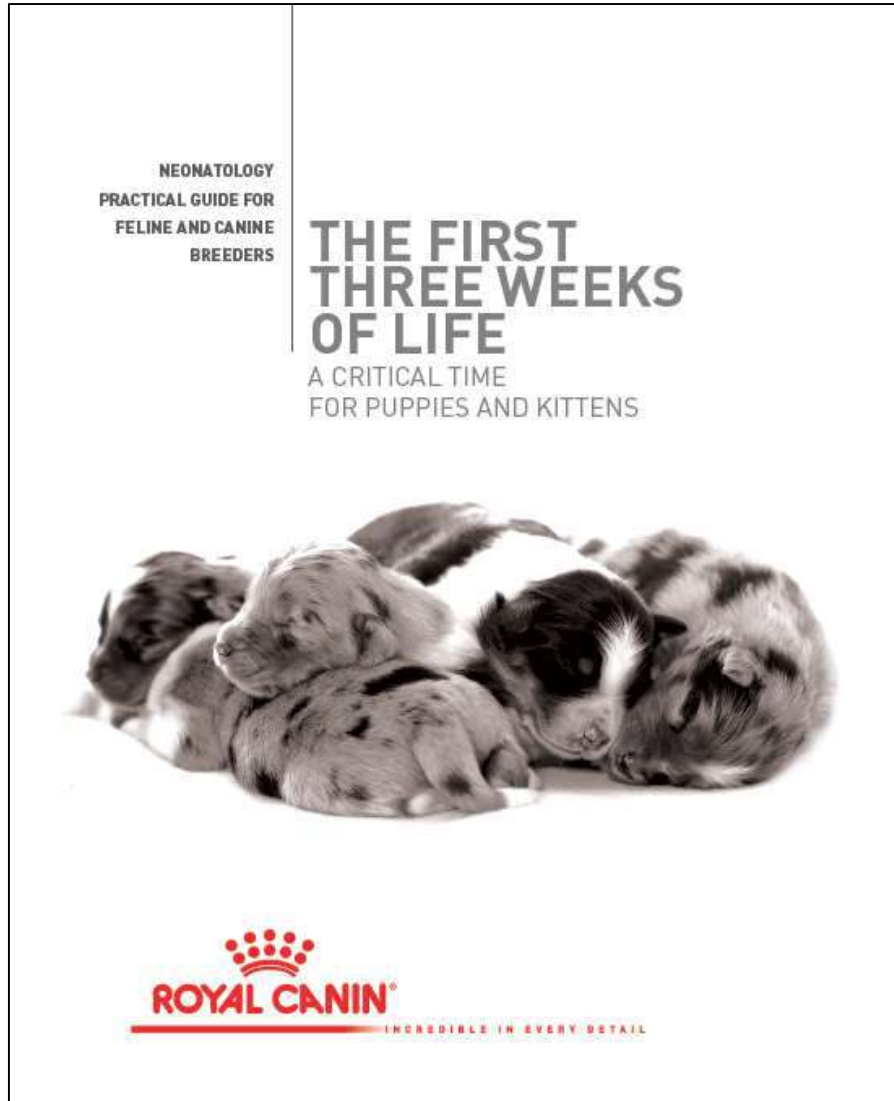
- email: repro@envt.fr
- letter: Ecole Nationale Vétérinaire de Toulouse
Service de Reproduction
Etude Croissance Chatons
23 Chemin des Capelles
31300 TOULOUSE
France

repro@envt.fr

Dr Amélie MUGNIER



If you want to know more....



Repro@envt.fr