

Energy balance in the bitch – Effect on birth weight and survival in puppies

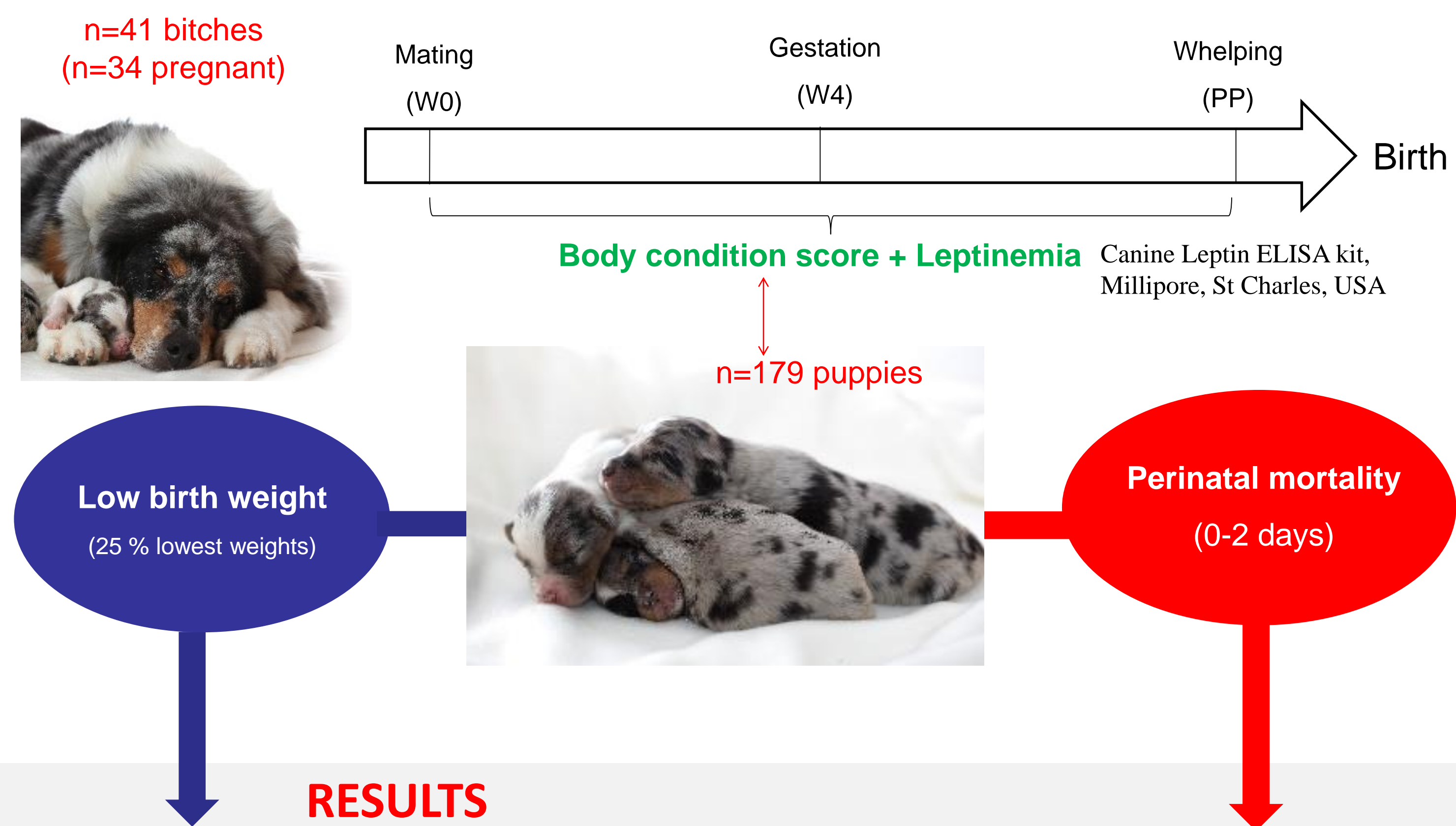
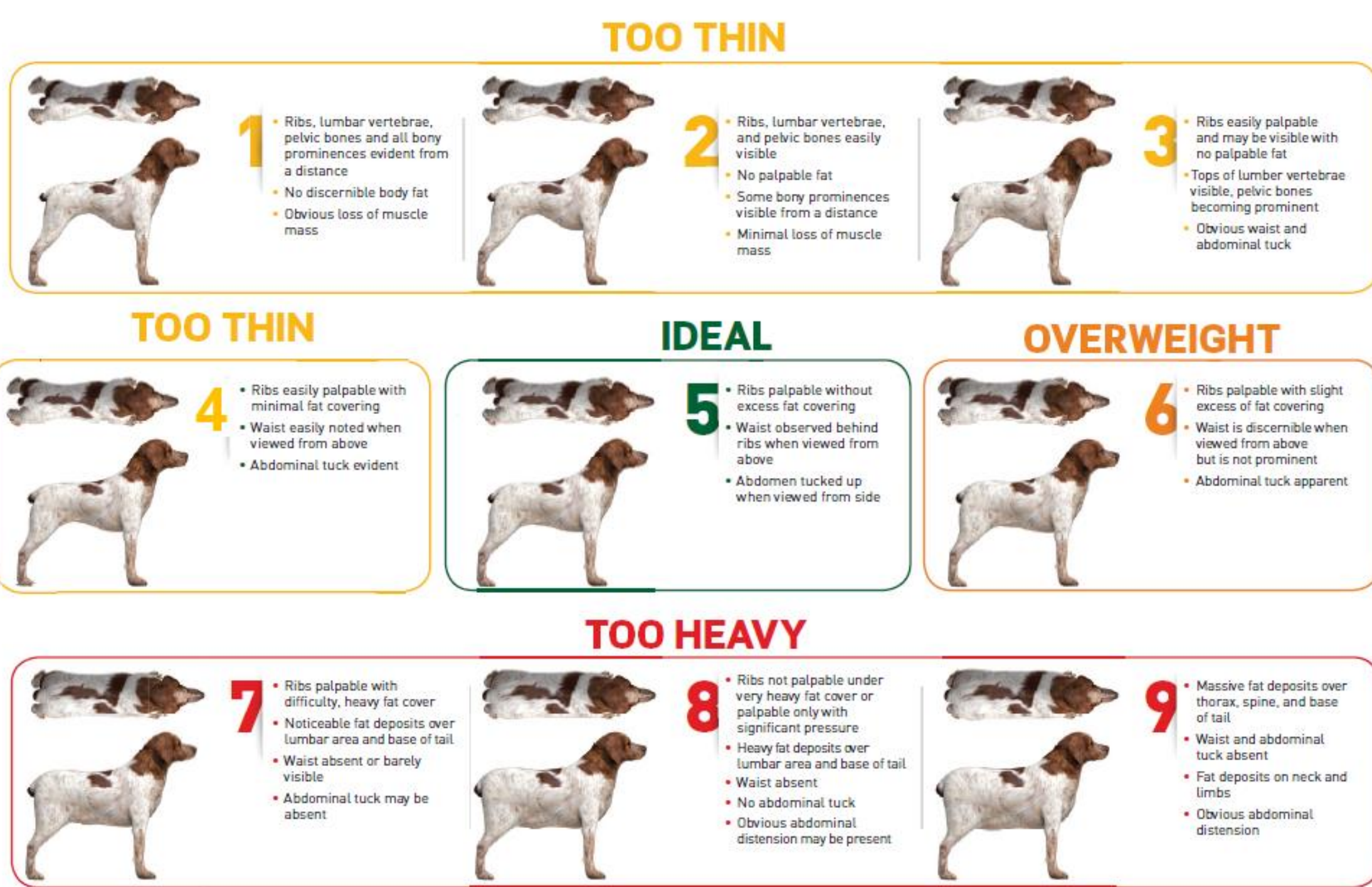
INTRODUCTION

Obesity is major public health issue, both in human and in canine population. It predisposes to medical disorders (endocrinological, orthopedics, tumoral), but also impairs reproductive function. Infertility, miscarriage, pregnancy complications and dystocia have been described in obese women. In sows, increased serum concentration of leptin [1] - one of the hormones secreted by the adipose tissue (adipokine), has been found associated with a reduction of both embryo development and uterine contractions during parturition [2].

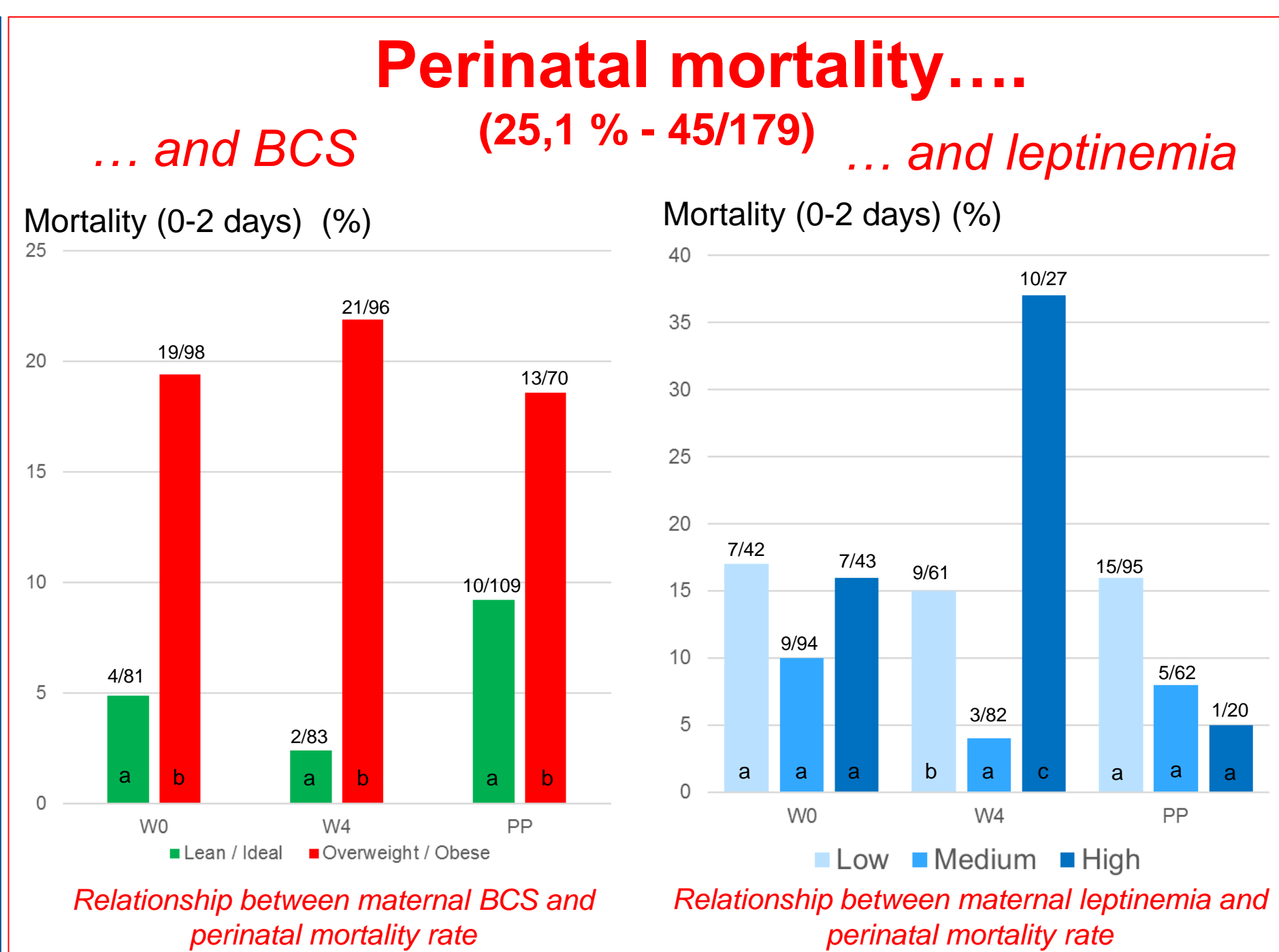
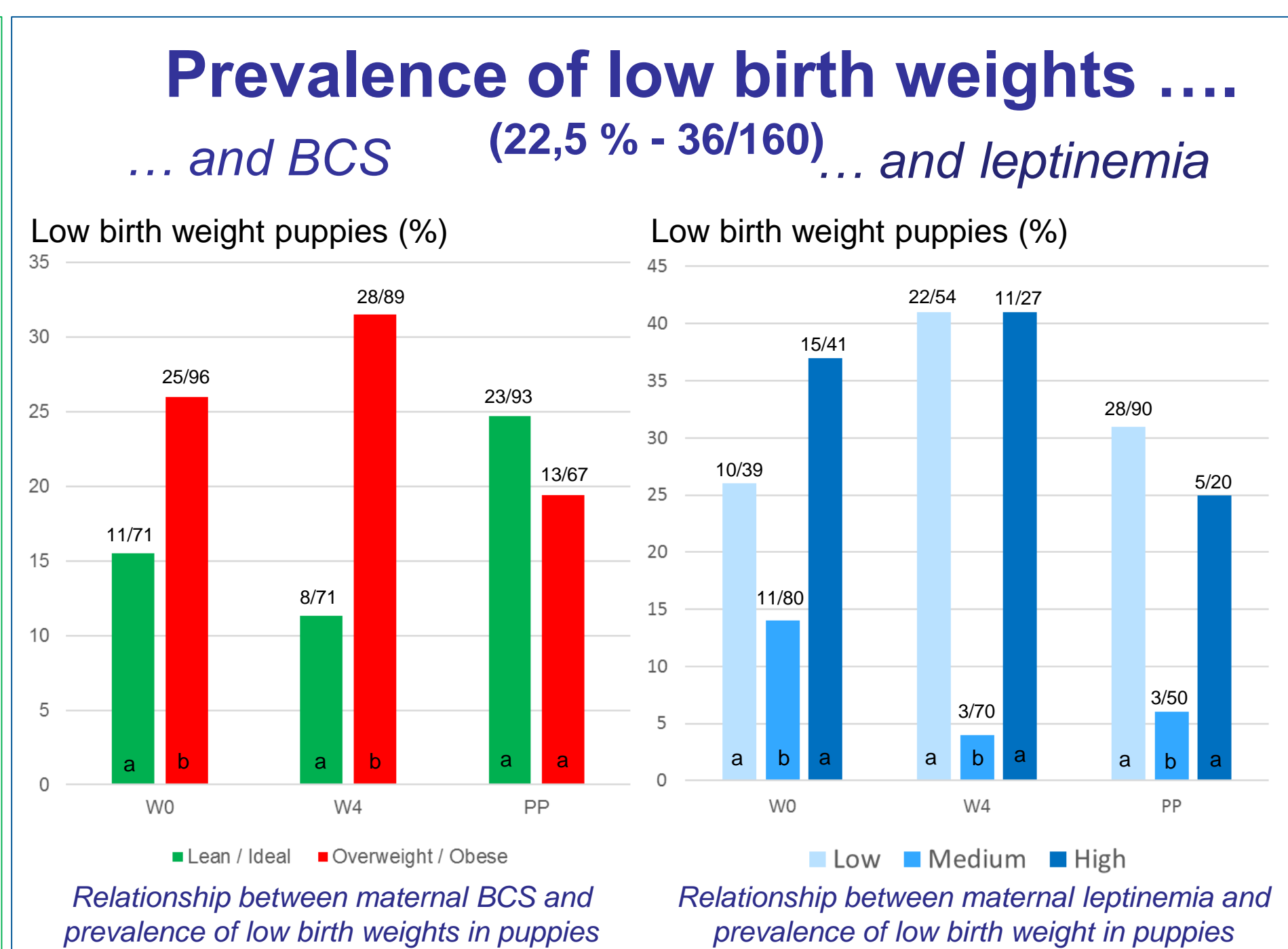
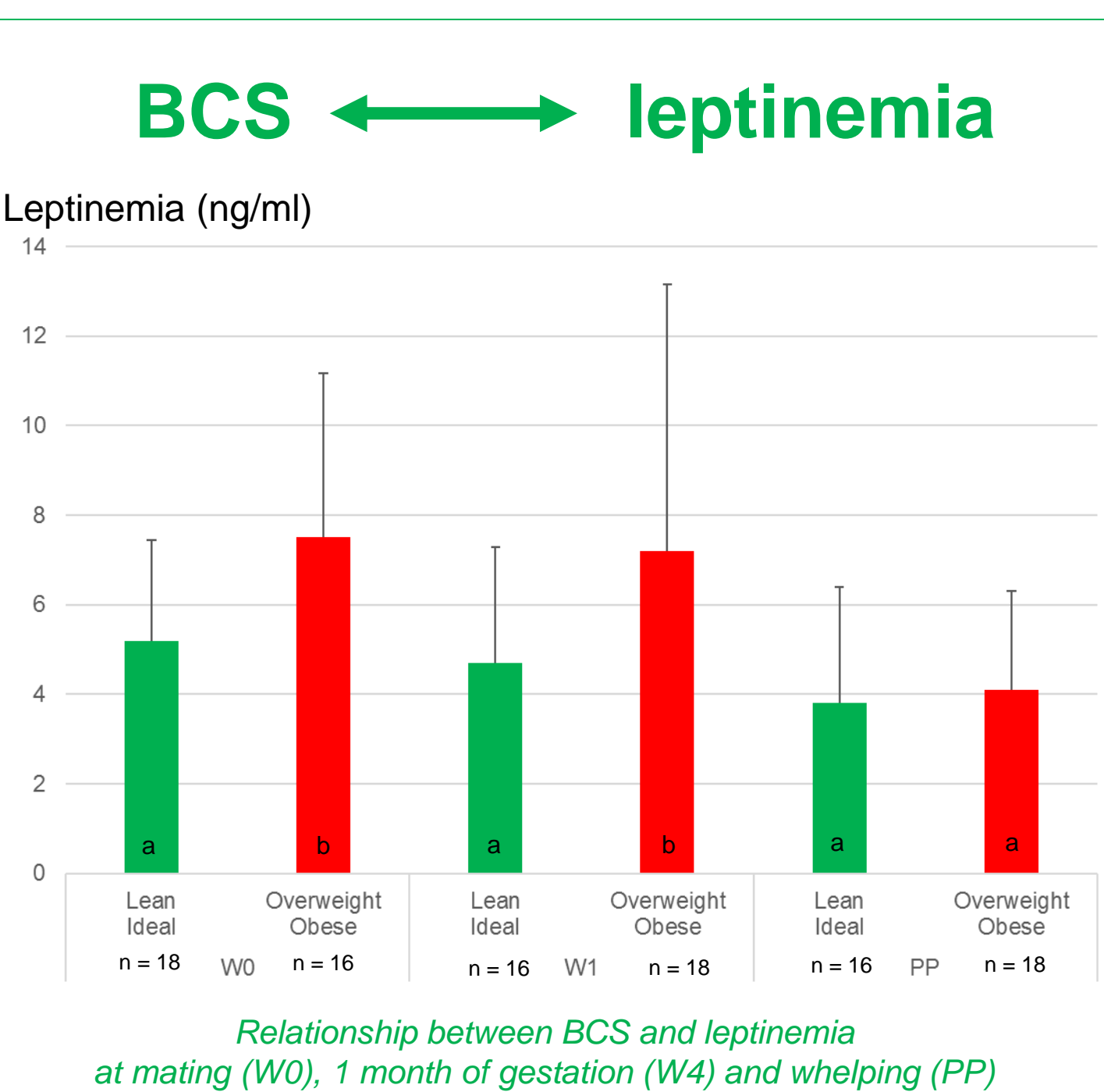
This study aimed to evaluate 1. the relationship between the BCS and serum leptin concentration in pregnant bitches
2. their effect on birth weight and perinatal mortality in the canine species.

MATERIALS AND METHODS

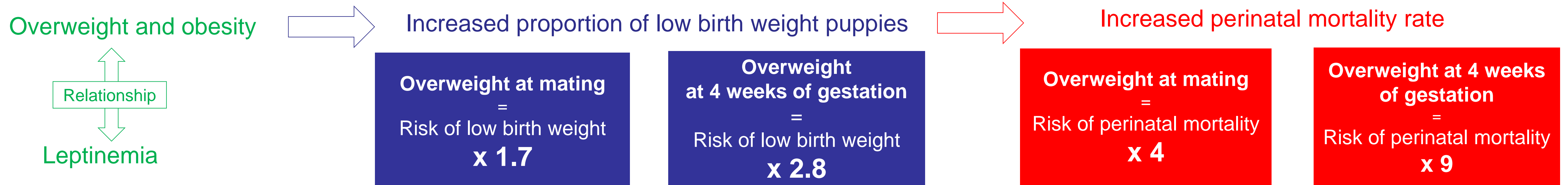
Figure 1: Scale for body condition scoring



RESULTS



DISCUSSION - CONCLUSION



Potential of dog as study model for human obesity

- Vast amount of background literature on the physiology of the dog
- Dogs have experienced their own epidemic of obesity (20-40% of dogs obese)
- Dog genome has already been mapped
- Evaluation of the exact quantity and quality of food ingested possible
- Like in human dogs suffer from metabolic syndrome (20% of obese dogs) [3]

Perspective

Maternal Body Condition Score during gestation ↔ Neonates

Early weight gain
Hormonal variations
Insulin resistance

[1] Metwally M, Li TC, Ledger WL. The impact of obesity on female reproductive function. Obesity Reviews. 2007. 8:515-523.

[2] Gonzalez-Añoover P, Encinas T, Torres-Rovira L, et al. Ovulation rate, embryo mortality and intrauterine growth retardation in obese swine with gene polymorphisms for leptin and melanocortin receptors. Theriogenology. 2011. 75(1):34-41.

[3] Asta Tvarijonavičiute A., Ceron J., Holden S. et al. Obesity-related metabolic dysfunction in dogs: a comparison with human metabolic syndrome. BMC Veterinary Research, 2012, 8:147