Accurate prediction of the timing for parturition and of the kittens’ birth weight
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The two-fold goal of this prospective study was to predict both the parturition time using ultrasonographic measurements of the femur compared to the biparietal diameter and the kittens’ birth weight. For this purpose, predictions were estimated using linear mixed-effects models on R software. This study was performed in 24 purebred queens with normal pregnancy. Cats were scanned from 35 days before parturition to the day of term, using a micro-convex probe. The best linear regression of the parturition time was $y = 37.864 - 0.193x_1 + 1.227x_2 - 0.615x_3 - 0.832x_4$. The variables were the femur length ($x_1$), the weight of the queen before pregnancy ($x_2$), the litter size ($x_3$) and the age of the queen ($x_4$). The 70% prediction level was $y \pm 1.6$ days. The kitten’s birth weight was correlated to the calculated femur length at birth ($x_6$) and the wither height ($x_5$). The estimated weight ($w$) was determined using: $\log (w) = 0.692 + 0.011x_5 + 0.005x_6$. The best predicted level was obtained using femur length as compared to biparietal diameter. The duration of the gestation was increased with the weight of the queen before mating ($P<0.01$). The onset of the parturition was sooner when the femur was longer, and when the queen was older ($P<0.01$). The prediction of kittens’ weight at birth would require a better accuracy of the pregnancy duration.

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