CORRELATION BETWEEN PROGESTERONE CONCENTRATION IN BLOW AND BEHAVIOUR IN A YOUNG FEMALE BOTTLENOSE DOLPHIN

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INTRODUCTION

Progesterone is a steroid hormone involved in estrous cycle, embryogenesis and pregnancy. Its concentrations vary according to these different phases inducing a great number of physiological and even behavioural effects. Specific aim of this study was to monitor from both an endocrinological and an ethological perspective, a nine year old female *Tursiops truncatus*, in order to assess the correlation between her progesterone levels and behavioural displays.

MATERIAL AND METHODS

The subject, named "Blue", was hosted at Oltremare and sampled for a total of 16 consecutive weeks from February to June 2006. Four times a week the dolphin was asked to blow into polypropylene bottles and the samples were stored at -20°C. Hormone concentrations were determined by a validated radioimmunoessay.
The behavioural observations were carried out twice a week with focal sessions lasting 1hr each (total 120 hours). A specific behavioural catalogue and Observer (Noldus) were applied to quantify frequency and duration of 66 behaviours *a priori* chosen for this study.

RESULTS AND CONCLUSION

FIGURE 1: The innovative source found in blow, together with the completely non invasive procedure applied, allowed to show progesterone levels increasing from extremely low values of preovulatory phases of the estrous cycle to constant high levels of pregnancy. In effects, as confirmed by a birth occurred exactly a year later, Blue was pregnant during the last three weeks of our study.

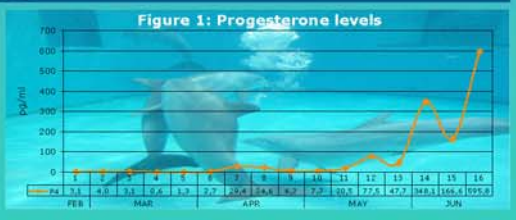
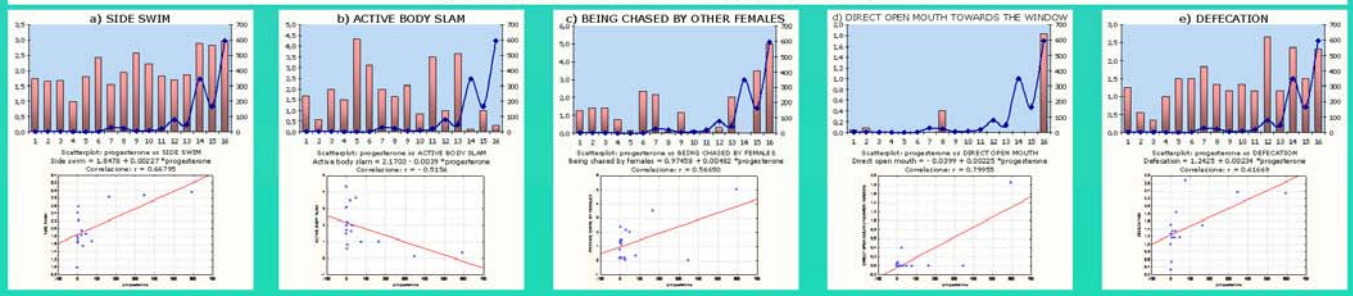


FIGURE 2: The Pearson's Correlation Test revealed a significant connection between progesterone and behavioural activities, in particular pertaining to locomotory/postural categories, such as in the case of "side swimming" (p=0.01), agonistic/aggressive situations (i.e.:"active body slam": p=0.05; "being chased by other females": p=0.05; "direct open mouth towards the window": p= 0.001) and physiological needs, as "defecation" (p=0.05).

Figure 2: Progesterone & Behaviour significant correlations



In conclusion, progesterone blow sampling overtook limits linked to the frequency and/or intrusiveness of other dosage methods while characteristic behavioural displays could represent extra parameters useful to detect animals' physiological conditions, wellness or health, in particular with reference to the crucial mechanism of reproduction, basis of species' perpetuation.

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