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(5) Abstract title:	<b>DETERMINATION OF CORTISOL IN BLOW OF BOTTLENOSE DOLPHIN AND CORRELATION WITH BEHAVIOURAL DISPLAYS DURING PREGNANCY</b>
(6) Abstract:	Cortisol is useful to monitor physiological and pathological conditions in dolphins. This hormone is usually extracted through consolidate procedures from blood, saliva, urine and faeces. However, an innovative source may be found in blow, which can be collected non-invasively. Specific aims of this study were a) to set up and validate cortisol determination procedures from blowhole samplings and b) to assess the correlation between cortisol levels and behavioural displays expressed during pregnancy. As for a) three <i>Tursiops truncatus</i> (1,2) in Rimini Delfinario (Italy) were sampled from November 2002 to June 2007. The dolphins were trained to blow into polypropylene bottles and the samples were stored at -20°C. Hormone concentrations were determined by a validated radioimmunoassay. The Pearson's Correlation Test applied to cortisol levels, simultaneously measured in blow and blood, revealed the reliability of the concentrations in blow ( $r=0,89$ ; d.f.=13; $p<0,0001$ ). Regarding b) a pregnant female was monitored from July 2006 during all the 52 weeks of her gestation. The behavioural observations were carried out twice a week with focal sessions lasting 1hr each (total 416hrs). A specific behavioural catalogue and Observer (Noldus) were applied to quantify frequency and duration of 64 behaviours <i>a priori</i> chosen for this study. The comparison between the behavioural trends and cortisol values, daily measured throughout the pregnancy, showed several cases of significant correlation. In particular, a positive relationship with stationary positions such as lie or rest at surface, the bending of the body or the emission of bubbles emerged. In conclusion, blow is safe, ready available and easy to store and transport. Blow sampling does not involve pain or infection and it is unaffected by the stress of animal handling. Moreover, the results underline the connection between cortisol and animal activities, providing an opportunity for further studies in both physiology and behaviour.
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