

The Use of Suprelorin® in Female Bottlenose Dolphins (*Tursiops truncatus*) and Indo-Pacific Bottlenose Dolphins (*Tursiops aduncus*)

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Abstract

The progress made by the scientific community in the development and use of contraceptive techniques provides the possibility to better manage animal populations kept in zoos. They advance beyond the physical separation of sexes or the transfer of animals to different institutions which could affect complex social groupings, potentially affecting the welfare of the individual and the group.¹ The use of contraceptive techniques allows zoo managers to maintain numerically sustainable populations by minimizing inbreeding within groups. Contraceptive use in primates, marine mammals, and avian species is also used to mediate unwanted sexual behaviors and to manage heightened aggression in large social groups.¹⁻³ The choice of contraceptive in a given species is often made based on prior literature. An example is the use of progestogen-based contraceptives. While frequently used in ungulates and primates, use in carnivores has been associated with reproductive neoplasia and infection.¹

Deslorelin (Suprelorin®) is a GnRH agonist, administered by means of a controlled release subcutaneous implant, with a duration of activity of approximately 6–12 months depending on the formulation and the species. It acts by suppression of the pituitary-gonadal axis and has been used successfully in the prevention of estrous cycling and/or spermatogenesis in many species.^{4,5} It is reported as a safer alternative for females, as the effect of hormones (endogenous estrogen and progesterone) does not appear to have a proliferative effect on the endometrium and breast tissue.⁶

In the literature there are numerous cases reported for the use of deslorelin in various mammals, fish, reptiles, and birds.⁴⁻⁸

In the present study we present the data obtained from 31 implants of Suprelorin® in 15 animals (n=1 *Tursiops truncatus* and 14 *Tursiops aduncus*) between July 2020 and March 2023 in order to manage the reproductive plan. All animals received one or two implants of 9.4 mg deslorelin, inserted in the muscle below the dorsal fin, where blubber was less than 1.8 cm. Body weight ranged between 97 and 176 kg. Females that could not be separated from males after implant placement received altrenogest (0.044 mg/kg PO, q24h) for approximately 10–15 days to suppress initial implant-induced stimulation. Females underwent ultrasound examination on a weekly basis to monitor ovarian activity and to document the resumption of follicular recruitment, indicating the endpoint of implant effects.

Of females that received only a single implant (n=8), follicular activity was observed to resume between 54–326 days post-implant. Among those, one female received an additional two implants (18.8 mg) after 262 days when no ovarian activity was present yet. In females that received two implants, ovarian activity resumed between 141–430 days post-implant. Of those

females that had first received two implants, four received another administration of 18.8 mg after 7–14 months and two received 9.4 mg after 357 and 407 days respectively, even if ovarian activity was not observed, to temporarily continue suppression. Currently there are 13 animals undergoing continued implants and reproductive monitoring.

The use of Suprelorin® as a contraceptive for reproductive management in bottlenose dolphins appears to be promising in our early efficacy and safety data.

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