

Animal name: Striped hyena (Hyaena hyaena)

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We would highly encourage any institutions using contraception in their animals to assess the efficacy and safety of the bout through hormonal, and behavioural monitoring. If you would like more information on how to do this please contact EGZAC.

Contraceptive methods	GnRH agonist (implant)	GnRH agonist (injection)	Progestagen (implants)	Progestagen (injection)	Progestagen (injection)	Surgical/Permanent
Contraceptive Product:	Deslorelin acetate	Luprolide acetate	Etonogestrel 68 mg	medroxyprogesterone acetate;	proligestrone 100mg/ml	
Commercial Name:	Suprelorin ®	Lupron ®	Implanon® Nexplanon®	Depo-Provera®, Depo-Progevera®	Delvosteron®	
Product Availbility:	4.7mg ('Suprelorin 6') and 9.4 mg ('Suprelorin 12') widely available through veterinary drug distributors in the EU.	Luprolide acetate licenced for human use	Manufactired by Bayer Schering Pharma AG. Available through human drug distributors	Manufactured by Pfizer. Widely avilable throughout Europe through human drug distributors.	Manufactured by MSD animal Health UK, Intervet Europe. Licensed for use in female dogs, cats, and ferrets; available through veterinary distributors.	N/A
Restrictions and/or permit required by Importing Country:	EGZAC reccommends: always check with your local licencing authority	Data deficient	EGZAC reccommends: always check with your local licencing authority	EGZAC reccommends: always check with your local licencing authority	EGZAC reccommends: always check with your local licencing authority	N/A
Mechanism of action:	GnRH agonist suppress the reproductive endocrine system, preventing production of pituitary and gonadal hormones. As an agonist of the GnRH initially stimulates the reporductive system—which can result in oestrus and ovulation in females or temporary enhancement of testosterone and spermatogenesis in males—therefore additional contraception needed during this time. Please see belwo and refer to Destorelin datasheet for detailed information	GnRH agonist suppress the reproductive endocrine system, preventing production of pituitary and gonadal hormones	Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Anti-estrogenic activity. Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Anti-estrogenic activity. Interference with fertilization by thickening cervical mucus, interrupting gamete transport, disruption of implantation, inhibition of LH surge necessary for ovulation	Castration and Ovariohysterectomy/ovariectomy - recommended Permanent contraception by surgical gonadectomy, with similar side effects to those in domestic species - weight gain, loss of secondary sex characteristics Vasectomy - Caution Surgical procedure in which the ductus deferens are cut, tied, cauterized, or otherwise interurrupted. Genrally considered irreversible though reversible techniques have been successful in certain species. Vasectomy of males will not prevent potential adverse effects to females from prolonged, cyclic exposure to endogenous steroids associated with the obligate hormonal pseudo-pregnancy that follows ovulation in most hyaenids. Endogenous steroids and steroid contraceptives cause similar side effects.
Insertion/Placement:	Sub-cutaneous, in a place where it can be easily detected or seen for removal at a later date (I.e.upper inner arm); refer Suprelorin fact sheet for effective method of implant placement (tunnelisation)	Injectable	Intramuscular or subcutaneous. EGZAC recommends sub-cutaneous, upper inner arm for visibility (aid for later removal)	Injectable intramuscular	Injectable subcutaneously - do not inject intradermally or into subcutaneous fat or scar tissue	Surgical
Females	RECOMMENDED	Data deficient	Not recommended	Not recommended	Not recommended	Ovariohysterectomy recommended
Dose	GRRH agonists are considered the safest reversible contraceptives, but dosages and duration of efficacy are not well established for all species; side effects are generally similar to those associated with gonadectomy, especially the potential for weight gain unless diet is controlled. Dosages and duration of efficacy have not been well established for exotic hyaenid species. As a guide: 3-4 x 4.7 mg for a minimum of 6 months; 3-4 x 9.4 mg for a minimum of 12 months. Please contact EGZAC for specific dosage information.					

	Latency to effectiveness:	3 weeks average as GnRH agonist initially stimulates the reproductive system - please refer to Deslorelin datasheet on this website for detailed information - separation of the sexes or additional contraception is needed during this time in order to suppres the initial stimulation phase (see product data sheet. "2-5mg/kg Megestrol acetate pills /Ovarld" daily 7 days before and 8 days after has been used to suppress inital stimulation phase). Treatment MUST commence when the female is in anoestrus.			
	Oestrus cycles during contraceptive treatment:	Initial oestrus and ovulation (during the 3 weeks of stimulation) may occur and then no oestrus cycle. To supress the initial oestrus and ovulation with the concomitant progesterone production and the associated deletere			
	Use during pregnancy:	Not recommended	Progestins should not be used in pregnant animals, since they may suppress uterine contractions necessary for normal parturition. Thus, progestins should only be administered to females CONFIRMED non-pregnant.		
	Use during lactation:	No contraindications once lactation established			
U	e in prepubertals or juveniles:	Data deficient. Deslorelin suppresses gonadal steroids; its use may delay epiphyseal closure of the long bones, resulting in taller individuals, similar to the effects of pre-pubertal spaying and neutering in domestic cats and lions. GnRH agonist use in pepubertal domestic cats was followed by reproductive cucles after treatment ceased however, species differences may occur.			
	Use in seasonal breeders:	Data deficient. Should start at least 1 month prior the breeding season.In females, GnRH agonists can induce estrus and ovulation even during the non- breeding season in some taxa			
	Duration	Duration of efficacy has not been well established as a guide: 4.7 mg implants will suppress for a MINIMUM of 6 months; 9.4 mg will be effective for a MINIMUM of 12months. The acerage duration of efficacy however is "1 year for 4.7 mg and "2 years for 9.4 mg. Individual variation occurs but durations tends to be regular for a particular individual's contraceptive bout.			
	Reversibilty	Deslorelin is generally considered reversible although we do not currently have any records of reversal in this species. We currently have three spotted hyera females in our system who have been allowed to breed however, none have yet conceived three years after their implant was inserted. Duration to reversibility is extremely variable. Removal of implant is considered to aid reversibility.			Not reversible

Effects on Behaviour	Similar to those seen with gonadectomy but reversible.					
Effects on sexual physical characteristics	Similar to ovariectomy but should be reversible. Weight gain has also been observed.	Some dichromatic species may change colour	Some signs of oestrus might occur. Ovulation may also occur even though pregnancy does not ensue.			
Males	Data deficient	Data deficient	Not recommended	Not recommended	Not recommended	Vasectomy
Dose	Data deficient. Generally not used for contraception in males as effectiveness is harder to monitor (ensuring continued absence of sperm requires regular ejaculate examination). It can, however, be used to ameliorate aggression in males of some species, but higher doses than in females are required ("ouble). In general, 4x 4.7mg implants are recommended for a MINIMUM of 6 months, and 4x 9.4mg implants are recommended for a MINIMUM duration of 12 months. Please contact EGZAC for specific dosage instructions.					N/A
Latency to effectiveness:	Depending on the species there may be fertile sperm present in vas deferens for 6-8 weeks post treatment or even longer. Testosterone decreases after 3-4 weeks but sperm can stay fertile for many weeks after. Research in black flying foxes shows reduced sperm motility after 1 month and aspermic ejaculations after 5 months.					Post-vasectomy allow 6-8 weeks post surgery to ensure no viable sperm is in the ejaculate. Keen sexes apart during this period or contracept the females
Use in prepubertals or juveniles:	Data deficient in this group, see product information sheet. Deslorelin suppresses gonadal steroids, its use may delay epiphyseal closure of the long bones, resulting in taller individuals, similar to the effects of pre-pubertal spaying and neutering in domestic cats. GnRH agonist use in prepubertal domestic cats was followed by reproductive cycles after treatment ceased. However, species differences may occur. There appear not be be any such problems in cheetahs.					
Use in seasonal breeders:	Data deficient. In males, GnRH agonists can transiently stimulate testosterone production even during the non-breeding season. Treatment should begin more than two months prior to the anticipated breeding season to prevent initiation of spermatogenesis, because it appears that suppression of sperm production is more easily accomplished before it has commenced.					
Duration and Reversibility	Duration of efficacy has not been well established as a guide: 4.7 mg implants will suppress for a MINIMUM of 6 months; 9.4 mg will be effective for a MINIMUM of 12months. Deslorelin is considered reversible although this has not yet been demonstrated in this species. We would recommend removal of the implant to aid reversal time, therefore we would advise placing the implant in a location that facilitates removal e.g. the inner thigh and umbilical areas.					Vasectomy is generally considered irreversible however, some successful reversible techniques have been used in certain species, but no publications in exotic hyaenids.
Effects on Behaviour	Testosterone related aggression is likely to decrease. Data deficient in this group, see product information sheet.					Vasectomy does not affect male behaviour.

characteristics	Data deficient in these taxa. Likely that body size may decrease, decrease testicular size, feminisation of males. Similar to gonadectomy but reversible. Males may experience feminisation. It is important to consider the implications of secondary sexual characteristic loss and the effects on the social dynamics.				Vasectomy - no loss of secondary sex characteristics
General:					
Side effects	Pseudopregancy, endometrial hyperplasia and pyometra may be associated with the use of GnRH agonist as a result of high progesterone levels during the stimulation phase. A more recently developed Suprelorin*/ deslorelin protocol using Ovarid*/megestrol acetate to prevent the initial stimulation phase, followed by implant removal when reversal is desired, may be a safer contraceptive option.	Risk of pseudopregancy, endometrial hyperplasi and pyometra increases with exposure to prolong circulating progestagens/ progesterone	Progestagen contraceptives are associated in hyaenids with progressive uterine growth that can result in infertility, infections, and sometimes uterine cancer; mammary tissue stimulation also can result in cancer. Risk of pseudopregancy, endometrial hyperplasia and pyometra increases with exposure to prolong circulating progestagens/ progesterone	Risk of pseudopregancy, endometrial hyperplasi and pyometra increases with exposure to prolong circulating progestagens/ progesterone	Vasectomy of males will not prevent potential adverse effects to females from prolonged, cyclic exposure to endogenous steroids associated with the obligate hormonal pseudo- pregnancy that follows ovulation in most hyaenids. Endogenous steroids and steroid contraceptives cause similar side effects.
Warnings	Causes initial gonadal stimulation that MUST be suppressed; correct administration essential - see product information sheet		SHOULD NOT BE USED PRIOR TO GnRH IMPLANT PLACEMENT Depo-Provera® should not be substituted for megestrol acetate, because its initial high levels and prolonged release can interfere with Suprelorin® efficacy.		Precautions - Vasectomy is not recommended for species with induced ovulation because mating will result in female pseudopregnancies with prolonged periods of progesterone elevation, which can cause pathology of uterine and mammary tissue. Endogenous progesterone and progestin contraceptives cause similar disease. In lions vasectomy commonly results in repeated mating many times without ovulation. Females get tired of being harassed and sometimes this results in fighting between sexes. As a result some collections have resorted to "switching off" females with deslorelin when they have a vasectomised male

Reporting Requirements: In order to increase our knowledge of the efficacy of contraception methods in hyaenidae it is recommended that all individuals on contraception be reported to EGZAC

References:

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Disclaimer: EGZAC endeavours to provide correct and current information on contraception from various sources. As these are prescription only medicines it is the responsibility of the veterinarian to determine the dosage and best treatment for an individual