



Canidae

Fact Sheet Compiled by: Yedra Feltrer

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We would recommend supplementing any contraceptive bout with behavioural and hormone monitoring. For more information on this, please contact contraception@chesterzoo.org

Contraceptive methods:	GnRH agonist (implant)	GnRH agonist (injection)	Progestagen (implants)	Progestagen (implant)	Progestagen (injection)	Progestagen (injection)	Surgical/ Permanent
Contraceptive Product:	Deslorelin acetate	Luprolide acetate	Etonogestrel 68 mg	Levonorgestrel 2x 75mg	medroxyprogesterone acetate;	proligestrone 100mg/ml	Vasectomy
Commercial Name:	Suprelorin ®	Lupron *	Implanon® Nexplanon®	Jadelle®	Depo-Provera®, Depo-Progevera®	Delvosteron®	N/A
Product Availability:	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	Manufactured by Bayer Schering Pharma AG. Available through human drug distributors	Manufactured by Organon. Available through human drug distributors	Manufactured by Pfizer. Widely available 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 recommends: always check with your local licencing authority	Data deficient	EGZAC recommends: always check with your local licencing authority	EGZAC recommends: always check with your local licencing authority	EGZAC recommends: always check with your local licencing authority	EGZAC recommends: 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 reproductive 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 below and refer to Deslorelin datasheet for detailed information	GnRH agonists 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	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	Vasectomy: Surgical procedure in which the ductus deferens are cut, tied, cauterized, or otherwise interrupted; Ovariohysterectomy: removal of one or both ovaries and the uterus; Ovariectomy: removal of the ovaries
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)	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		Data deficient	Not recommended	Not recommended	Not recommended	Not recommended	
Dose	Dosages and duration of efficacy have not been well established for canid species. Please contact EGZAC for dosage recommendations.		N/A	N/A	N/A	N/A	

Latency to effectiveness:	3 weeks average as GnRH agonist initially stimulate the reproductive system- please refer to the Deslorelin datasheet for detailed information - additional contraception is needed during this time in order to suppress the initial stimulation phase (see product data sheet. ~2mg/kg Megestrol acetate pills /Ovarid® daily 7 days before and 8 days after has been used to suppress initial stimulation phase)		N/A	N/A	N/A	N/A	
Oestrus cycles during contraceptive treatment:	Initial oestrus and ovulation (during the 3 weeks of stimulation) may occur and then no oestrus cycle. To suppress the initial oestrus and ovulation with the concomitant progesterone production and the associated deleterious effects of this you MUST follow the megestrol acetate protocol mentioned above.		N/A	N/A	N/A	N/A	
Use during pregnancy:	Not recommended		N/A	N/A	N/A	N/A	
Use during lactation:	No contraindications once lactation established		N/A	N/A	N/A	N/A	
Use in prepubertals or juveniles:	Data deficient in this group, see product information sheet		N/A	N/A	N/A	N/A	
Use in seasonal breeders:	Data deficient. Should start at least 1 month prior the breeding season.		N/A	N/A	N/A	N/A	
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 12 months.		N/A	N/A	N/A	N/A	
Reversibility	Considered reversible but every species has not been tested. Reversibility has been demonstrated in African Wild dogs, Maned wolves, Arctic foxes, Red wolves, and Mexican wolves. Duration to reversibility is extremely variable. Removal of implant is considered to aid reversibility.		N/A	N/A	N/A	N/A	
Effects on Behaviour	Similar to those seen with gonadectomy but reversible.		N/A	N/A	N/A	N/A	
Effects on sexual physical characteristics	Similar to gonadectomy	Some dichromatic species may change colour.	Some signs of oestrus behaviour might occur. Ovulation may also occur even though pregnancy does not ensue.	Some signs of oestrus behaviour might occur. Ovulation may also occur even though pregnancy does not ensue.	See above	See above	
Males		Data deficient	N/A	N/A	N/A	N/A	Vasectomy
Dose	Usually higher doses are required in males compared to females. Data deficient. Please contact EGZAC for dosage recommendations.		N/A	N/A	N/A	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.		N/A	N/A	N/A	N/A	

Use in prepubertals or juveniles:	Data deficient in this group, see product information sheet		N/A	N/A	N/A	N/A	
Use in seasonal breeders:	Data deficient. Should start at least 2 months prior the breeding season.		N/A	N/A	N/A	N/A	
Duration and Reversibility	Deslorelin is considered reversible and reversibility has been demonstrated in the African wild dog and the Mexican wolf.		N/A	N/A	N/A	N/A	
Effects on Behaviour	Testosterone related aggression is likely to decrease. Data deficient in this group, see product information sheet.		N/A	N/A	N/A	N/A	
Effects on sexual physical characteristics	Body size may decrease, decrease testicular size, feminisation of males. Similar to gonadectomy but reversible		N/A	N/A	N/A	N/A	
General:							
Side effects	Pseudopregnancy, 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®/mestrol acetate to prevent the initial stimulation phase, followed by implant removal when reversal is desired, may be a safer contraceptive option.		Risk of pseudopregnancy, endometrial hyperplasia and pyometra increases with exposure to prolonged circulating progestagens/ progesterone	Risk of pseudopregnancy, endometrial hyperplasia and pyometra increases with exposure to prolonged circulating progestagens/ progesterone	Risk of pseudopregnancy, endometrial hyperplasia and pyometra increases with exposure to prolonged circulating progestagens/ progesterone	Risk of pseudopregnancy, endometrial hyperplasia and pyometra increases with exposure to prolonged circulating progestagens/ progesterone	
Warnings	Causes initial gonadal stimulation that MUST be suppressed (see above); correct administration essential - see product information sheet						Vasectomising the male 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 canids. The risk of pseudopregnancy and pyometra increases with age and over time in females that experience exposure to progesterone during repeated non-conceptive cycles. We would strongly discourage tubal ligation in canidae due to the associated risk of developing uterine pathology.
Reporting Requirements: In order to increase our knowledge of the efficacy of contraception methods in the Canidae family it is recommended that all individuals on contraception be reported to EGZAC							

References:

1) Factors Associated With Uterine Endometrial Hyperplasia and Pyometra in Wild Canids: Implications for Fertility Cheryl S. Asa,1,2* Karen L. Bauman,1 Sarah. Zoo Biology 1-12 (2013)

2)

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