

Care of the Racing & Retired Greyhound



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ioral changes similar to those seen in the pregnant bitch during pregnancy, parturition, and lactation (see Figure 9-9 on Plate XVI). These behavioral changes include restlessness, an increased demand for affection, nesting behavior, and retrieval of inanimate objects. These behaviors are occurring while the serum progesterone levels are falling, and concurrently, prolactin (a hormone produced by the pituitary gland) is rising. It is the rise in prolactin that is believed to be a major factor in the development of overt pseudopregnancy. These factors are important to know when using hormone antagonists or blocking agents to treat and reduce signs of pseudopregnancy (see prevention of lactation on page 167).

Clinically Relevant Facts about the Reproductive Cycle of the Bitch in Racing Greyhounds

All of the aforementioned reproductive physiological changes can be more simply divided into three stages that are of concern to trainers, relative to racing performance. These are:

Stage 1.

The first stage lasts for 3 weeks and consists of the proestrus and estrus periods or the time of "heat" or "coming into season." The bitch coming into season passes urine more frequently and is attractive to other Greyhounds. Within 10 to 14 days the bitch comes into full season with swelling of the vulva, and a bloody discharge (Figure 9-4A on Plate XVI). During this stage the bitch can be walked normally or given swimming exercise, but she should not be slipped, trialed, or raced.

Stage 2.

The second stage also lasts for 3 weeks (early diestrus). The bitch now returns to normal body function for a few weeks, and can be slipped, trialed, or raced. All discharge will have ceased, and the swollen vulva reduced to normal size.

Stage 3.

The final stage lasts for 9 weeks (middle and late diestrus). The mammary glands now swell and the bitch may come into milk (pseudopregnancy). During this time she can be walked and have swims, free runs or handslips, but should not be trialed or raced. The restricted exercise program is observed because of the prolactin hormone production by the pituitary that is responsible for milk production. Prolactin causes fat to be deposited in the muscles which leads to muscle weakness and a predisposition to muscle and ligament disruption.

Trainers should note that the full estrus cycle, excluding anestrus, from start to finish lasts 15 weeks

($3+3+9=15$) and, of this time, the bitch can race or trial only for the second 3-week stage. The earliest a Greyhound bitch can come into season is about 6 months of age, but this would be exceptional. For most bitches, the first cycle commences at 9 to 18 months of age. Some bitches cycle at six month intervals, while others cycle at 9, 12, 18, or 24-month intervals. There is no rule for determining the frequency of cycles. The majority of bitches come into milk after each season, although the stress of a busy workload and racing program during the third to sixth week of the cycle often greatly reduces the quantity and duration of milk production. This is due to the negative feedback effect of stress induced cortisol on the ovary and rostral (anterior) pituitary gland.

Prevention of Estrus

The stress of racing and training may be sufficient to stop the cycle from appearing and keep the bitch out of season for 2 or 3 years. This is why bitches often cycle when rested, or spelled, or upon changing from one training kennel to another. The short period of easing up on the work load (i.e., reduction of stress) permits the season to start.

1. Male Hormone Based Medications

The use of testosterone derivatives is the most common means of deterring heat cycles in females in the United States. Bitches given a course of anabolic steroid injections or oral therapy (nandrolone, methandriol, boldenone, stanozolol, mibolerone) to increase muscular strength and endurance may also be prevented from coming into season as a side effect of these hormones (see Chapter 24, page 412 for doses and details of use). However, the use of anabolic steroids to control estrus cycles in the bitch must be in accord with the drug and medications rulings of the country in which the bitch is raced. In the United States, there are limited types of testosterone available for use and all need to be obtained through a prescription by a veterinarian. Halotestin® is an oral, synthetic testosterone (fluoxymesterone) being used successfully in some Greyhounds at 5 mg ($\frac{1}{2}$ tablet) twice a week. The use of oral methyl testosterone tablets (Chewables by Vita Max Rx) containing 25 mg of drug are recommended to be given on the schedule of one tablet on Sunday and one tablet on Wednesday to keep bitches in racing kennels out of heat. Some racing kennels prefer the injectable forms of testosterone. Injectable aqueous testosterone (Vita Max Rx) at a 25 mg dose ($\frac{1}{4}$ cc of 100 mg/ml drug) subcutaneously once every 2 weeks is being used successfully to pre-

vent estrus in Greyhounds. Alternatively, use of testosterone cypionate (Vita Max Rx), an oil based preparation, at 25 mg injected subcutaneously every 3 weeks is a common practice in racing kennels. Another source of testosterone in the United States is through Anicare (1-800-476-2642 or anicareinc.com). In the southern states of the United States where warmer temperatures exist, especially in the spring and summer months, some trainers successfully use 50 mg testosterone cypionate subcutaneously every 3 weeks to prevent cycling.

2. Female Hormone Based Medications

The estrus can also be prevented by using a human estrogen contraceptive pill such as Nordiol® or Nordette-21® using 1 tablet daily. Nordette-21® has lower levels of the active ingredients but should prove effective in estrus prevention; however, more data and experience are needed with use of this product. Primolut-N® 5 mg tablets (norethisterone, a human progesterone type drug) with one half tablet once a day while in work is another choice. However, some bitches will lose form while on this latter medication and others will not. Synthetic progesterone derivatives are available in injectable form for the prevention of estrus, e.g., Covinan® (proligestone, 100 mg/ml). While these preparations are as effective for estrus suppression as any other medication derived from the female hormone, they invariably reduce performance and generate a "maternal response." Some bitches actually undergo pronounced mammary development 4 to 6 weeks after medication. Again, these are not reliable in all bitches for preventing estrus.

No program is 100% effective in preventing the estrus cycles of all bitches. It is largely a matter of trial and error to find the best program for any one particular bitch as well as using the type of hormonal control that is acceptable by the racing authorities in that jurisdiction.

3. Side Effects of Hormonal Control of Estrus Cycles

It should be noted that the methyl testosterone and anabolic steroids are all derived from the male hormone, testosterone, whereas, the alternative group are derived from female hormones. If the bitch has an adverse reaction to either one, (see below) then one should change to the opposite form of medication.

The adverse side effects of male-derived hormonal preparations are increased aggression which can result in fighting during trialing or racing; increased weight due to water retention; occasional loss of vigor; and virilization. The latter is evidenced by vulvar swelling,

enlarged protruding reddened clitoris, and a clear to cloudy mucoid discharge from the vulva that mats the hairs under the tail where contact is made (Figure 9-10 on Plate XVI).

The female progesterone-derived hormonal preparations may have some adverse effects of "maternal response." These include increased prominence of nipples, weight gain due to fluid retention and fat deposition, loss of aggression (increased kindly, maternal feelings), and lassitude. Estrogen-derived preparations do not appear to have these side effects.

Prevention of Lactation

Prolactin is the hormone responsible for the signs of pseudopregnancy in dogs. It is produced in the pituitary gland and various combinations of medications have been tried to reduce the output of this hormone.

Multihormone Medication

There are some alternatives to estrus prevention. One is to allow the bitch to cycle normally and then attempt to stop milk production. This is accomplished with tablets of combined male and female hormones started on day 21 from the first appearance of blood from the vulva. There are two dose regimes currently in use for prevention of lactation: Sesoral® (ethinylloestradiol .005 mg, methyltestosterone 4 mg) or Mixogen® (ethinylloestradiol .0044 mg, methyltestosterone 3.6 mg).

1. Beginning on Day 21 from the onset of bleeding:

- 1 tablet every 8 hours for 5 days, then
- 1 tablet every 12 hours for 14 days, then
- 1 tablet daily for 14 days.

Keep the bitch in full work, trialing and racing, as any period of respite will encourage lactation on about day 42.

2. Commencing on Day 42 from the onset of bleeding:

- 7 tablets in 1 dose; then
- 6 tablets in 1 dose on Day 43; then
- 5 tablets in 1 dose on Day 44; then
- 4 tablets in 1 dose on Day 45; then
- 3 tablets in 1 dose on Day 46; then
- 2 tablets in 1 dose on Day 47; and then
- 1 tablet in 1 dose on Day 48.

This is often very effective and permits a return to full work for those bitches in which it is successful.

Prolactin Inhibition Medication

Prolactin is the hormone responsible for the signs of pseudopregnancy in dogs. Another three medications aimed at reducing prolactin output are:

1. Galastop® (cabergoline). It should be administered at a dose rate of 5 µg/kg for 5 consecutive days starting around 45 days after the beginning of the