

Reproductive anatomy - getting pregnant

Breeder Booklet No. 5



This is the fifth in a series of booklets developed to support the successful breeding of racing greyhounds.

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Thinking about breeding greyhounds

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Developing a breeding program - understanding genetics

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Reproductive anatomy

As a breeder of greyhounds, you need to understand what 'normal' is in regard to reproductive anatomy, so that you can detect when parts of the reproductive system are abnormal.

You also need to be able to distinguish males from females in your new-born litter as newborn or very young pups can look similar.

If you are planning on purchasing a male specifically for breeding, it is likely to be money well spent to have your veterinarian (or a veterinarian who specialises in reproduction) examine the male to ensure he is fertile and is normal in terms of anatomy so that he is able to get your females pregnant. All male greyhounds that are to be used for breeding should have both testicles fully descended into the scrotum. Although

it is possible for a dog to be fertile with only one testicle descended, it is a genetic fault that can be passed on and may result in pups with retained testicles and reduced fertility.

Veterinarians who specialise in reproduction can also assist with female breeding greyhounds who are not cycling normally, not successfully falling pregnant, or not carrying a pregnancy to full term. Sometimes it is as simple as getting your timing right, or sometimes a female may have internal problems that need to be addressed for her to be successful in breeding.

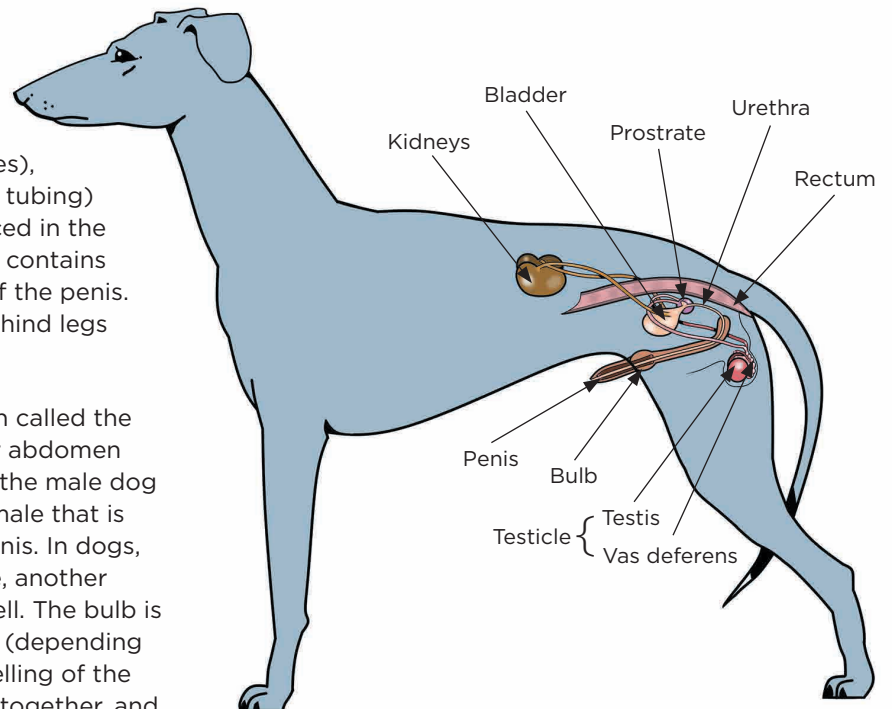
Remember to talk to your veterinarian about vaccination and parasite treatment before you mate your greyhounds.



Male reproductive anatomy

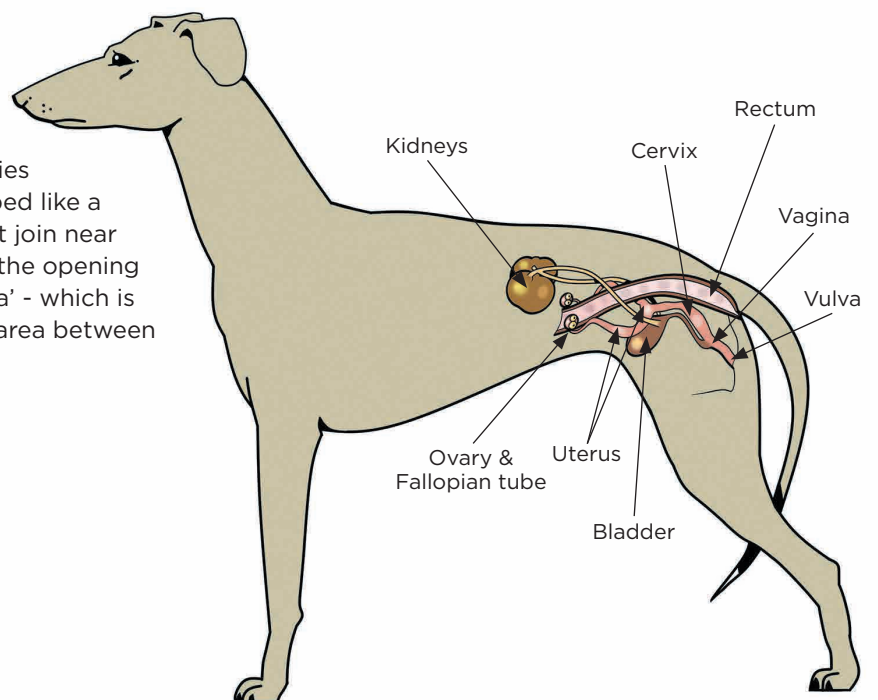
Male greyhounds have two testicles, a penis and a prostate gland which are all connected. Sperm cells are produced in the testes (the main part of the testicles), and travel through the vas deferens (fine tubing) into the urethra, mixing with fluid produced in the prostate gland (to produce semen which contains the sperm) and exiting out of the head of the penis. The testicles of a dog hang between the hind legs suspended in the scrotal sac or scrotum.

The penis is protected by a sheath of skin called the 'prepuce' that runs along the dog's lower abdomen with the opening facing forwards. When the male dog is aroused by the sight and smell of a female that is ready to mate, blood will engorge the penis. In dogs, once the male has penetrated the female, another part of the penis called the 'bulb' will swell. The bulb is located 5-15 cm from the tip of the penis (depending on the size of the male dog). It is the swelling of the bulb that causes the dogs to 'tie' or lock together, and the male will then turn, lifting his leg over the back of the female, until they are standing tail to tail.



Female reproductive anatomy

The female greyhound has two ovaries that produce 'eggs', a uterus (womb) in which the pups will develop and grow, and Fallopian tubes that connect the ovaries with the uterus. The uterus in dogs is shaped like a long 'V' with two sides (called 'horns') that join near the cervix. From the outside, you can see the opening of the reproductive tract - called the 'vulva' - which is located below the greyhound's anus. The area between the vulva and cervix is called the vagina.



Getting pregnant

How will I know when my female is ready to mate?

Female greyhounds, like all dog breeds, will only mate when they are 'on heat' or 'in season' (this stage being called 'oestrus').

The usual age for the first 'heat' of a female greyhound is 18 months of age.

The full reproductive cycle in greyhounds will usually repeat every 6-12 months depending on the female (unlike most other dog breeds where it is more likely to be every 6 months). It is only when she is on heat that she will be able to be mated. In between being on heat, her reproductive system 'hibernates', and there is very little hormonal activity.

During oestrus, a female dog will initially 'bleed' (discharge a blood-tinged fluid) from her vulva, and her odour will change making her very interesting to males (and some females). Generally, owners will notice that other dogs are very interested in sniffing the female's vulva, and that she also sniffs and licks at her own vulva repeatedly. The fleshy part of the vulva will swell, but the extent of the swelling varies widely, as does the amount of bleeding.

If you notice a lot of 'interest' in your female all of a sudden, or you see your female repeatedly licking herself, you can gently dab her vulva with a clean, white tissue to see if any coloured discharge is present. Some females are very 'clean' and you may not see any blood in her pen, enclosure, or in her bedding, so you need to be observing closely.

Females will have an initial period of bleeding where they are not quite ready to mate, and this can last a few days or even a few weeks depending on how early you notice and the individual female's cycle. As her 'season' progresses, some females get very flirty, but will then snap at or growl at the male as he tries to mount her. As her hormone levels change and she prepares to ovulate, she will become more receptive to the male, and she will start to 'flag' her tail (lifting



and moving it to the side when touched in that area) and 'stand' (standing still so the male could mate her). Her discharge should change from red blood to a clear fluid or may decrease. She is now ready to mate.

Once she has ovulated, she is at her most fertile, and for the next few days, could fall pregnant if mated to a fertile male. The cycle then continues, and the female will go 'off season' over the next week with the swelling of the vulva reducing, and the discharge stopping altogether.

Mating

You have selected your breeding pair, planned your mating, and your female is now in season. So how does she get pregnant?

Many years ago, the accepted practice for mating was to put the male and female in together on day ten of her cycle, and again two days later. Very little was known about the female greyhound's cycle and there were no reliable tests to determine when she was actually ready to be mated. Luckily, science has progressed where we now have a number of different methods of getting a female greyhound pregnant, along with ways to tell when she is most fertile and should be mated.

Getting the timing right

Timing the mating is very important. Get it wrong and you will find she either has a very small litter, or worse still, misses altogether. This can be very frustrating as you then have to wait six or more months before you can try again. The first step to getting the timing right is knowing when your female is due to cycle (come in heat). This way you can be checking her regularly and will certainly notice when she first comes in.

Marking her seasons on your calendar will give you lots of information. Females tend to cycle regularly - maybe every 6 months, maybe every 9 months - each is an individual, but they tend to repeat the same interval each time.

Knowing how long her oestrus normally is also helpful. If she bleeds for 4 weeks, it may be that she ovulates later than most females; if you hardly notice any blood at all, she might be a 'short cycler' and ovulates early. Luckily, we now have a blood test that can tell us when the female is likely to ovulate - the progesterone test. This replaces the older, less reliable methods of detecting ovulation such as vaginal cytology (from a swab test), changes in discharge colour, or relying on the male to know.

By taking repeated progesterone tests over a number of days, the rise in the progesterone level that is associated with ovulation can be detected. This test is a blood test that needs to be conducted by a veterinarian usually from 5 days after the first signs of heat. The test often has to be taken multiple times over the following weeks every few days to determine the peak (with the tests getting closer together as she nears ovulation). The test is certainly essential if you are using frozen semen as it does not live as long after insemination, meaning the timing of implantation has to be spot on to get good results.

On the other hand, fresh semen can survive a few days, and has even been known to last up to a week, which increases the chances of live semen being present when the eggs are ready to be fertilised. If your female is to travel to the male, this means that you can send her at the very best time, and she will have less time away from home.

Mating approaches

Mating can be natural mating or through artificial insemination (using fresh, chilled or frozen semen). The use of frozen semen is very popular throughout the greyhound industry. Through a special process, the semen from a male is collected, processed and then frozen in small straws (a frozen straw of semen is called a 'breeding unit') using liquid nitrogen.



The frozen straws are stored in liquid nitrogen, and the semen can last for years so can be shipped around the country or around the world.

Frozen semen means that it is possible to have access to male greyhounds that would not otherwise be available (maybe due to quarantine requirements, distance or because the male is deceased).

A male may have frozen 'breeding units' stored at a number of storage facilities. When you apply to the stud master to use the male, you will need to have one of these units transferred into your name prior to you being able to use it.

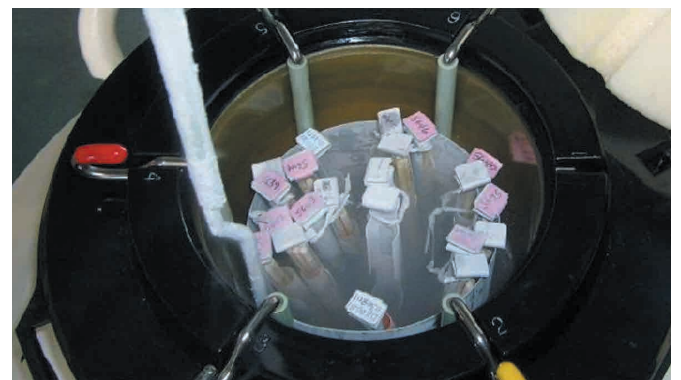


Image sourced from: <http://www.trade-genetics.com/frozen-semen--embryos.html>

It will then need to be shipped to the facility that you plan to use for implantation in a special 'shipper' that maintains the correct temperature of the semen, so it does not thaw.

When the female is ready to be mated, the frozen semen is carefully thawed, and then used to inseminate the female, either surgically or trans-cervically (a non-surgical method). It is vital that the female is at the correct stage of her season as frozen semen does not live as long as fresh semen and is not quite as robust.

The inseminating veterinarian will examine the semen after it is thawed to check its quality and post-thaw sperm movement (motility).

Surgical insemination (sometimes called Frozen Semen Insemination or FSI) involves anaesthetising the female and making a small incision in her abdomen so that her uterus can be gently lifted out. The semen is then injected directly into the uterus via a fine needle with half of the semen being injected into each side (horn) of the uterus. The uterus is then gently placed back, and the surgery site is stitched (sutured) closed.



Trans-cervical insemination (abbreviated TCI) is preferred by some AI facilities as it does not require the female to have a general anaesthetic. With the female awake and standing, a fibre-optic scope is used to guide a special catheter through the vagina and cervix, and the semen is deposited inside the uterus. Done by an experienced and proficient person, this method can be completed quite quickly, and the pregnancy results are similar to the surgical method.

Which method is used will depend on the facility and the veterinarian that you use. It is a good idea to talk to the person who will be doing the insemination before the female comes into season so that you know exactly what they need from you, and what is involved. You will also want to know what the costs are likely to be, and make sure the semen arrives well in advance so that there is no last-minute rush.

Remember, surgical insemination is an invasive procedure. Your female will need rest and wound care.

Make sure you speak to your veterinarian about the type of care she will need post-surgery before you agree to surgical AI. You need to consider whether you have the time and appropriate environment to care for her after surgery.

If you are seriously considering breeding, begin to think about understanding the mechanics of mating - well before the breeding is to take place.

Breeders Checklist

- Make sure you continue to talk with your veterinarian
- Check your female greyhound daily when she is due to come into season
- Make sure the mating is timed well
- Note the expected whelp date on your calendar.

