



CANYON PET HOSPITAL

Northern Arizona's premier veterinary hospital

1054 E Old Canyon Ct. Flagstaff, AZ 86001
Phone: (928) 774-5197 Fax: (928) 774-5278
www.canyonpet.com

Reproductive Q&A

Questions about dog breeding are some of the most common that we get at Canyon Pet Hospital. We wanted to try and address the most frequently asked questions here so that it would be available for people to access at all times. Before we begin, please remember that when dealing with reproductive issues, we are dealing with hormones, and there are never any "exacts." If you are ever in doubt or something does not seem right, call your veterinarian.

Breeding

Females

It is recommended that a female not be bred until she is two years or older. There are two reasons for this. First, the female is not through growing until that time and pregnancy can put a hardship on her body. Second, dogs are not emotionally mature until about two years of age, and are therefore sometimes not equipped to raise puppies until then.

Males

Males, technically, can breed successfully at as young as four months of age. However, most males are not able to "complete the process" until at least one year of age, simply because of a lack of maturity.

Heat cycles

Small-breed females can come into heat as young as six months, but usually do not come into heat until eight months of age. Larger-breed females tend to come into heat until sometime between 10 and 12 months of age. The giant breeds can wait until after a year of age to have their first heat cycle—this is normal. Heat cycles are about six months apart, and this is not usually affected by the fact that a female has delivered puppies. Some females can come into heat more often, and some less often, and still have no problems conceiving. Remember, hormones don't really tend to take orders from anyone, so things can vary quite a bit. The first couple of heat cycles are usually not normal or regular, but that does not mean the cycles will not be regular in the future. The heat cycle of a female lasts about 30 days. During the first 10 days, she will usually have bleeding and vulvar swelling and will smell enticing to males. However, during this time, most females are not receptive to the male and will chase him away. During the second 10 days, the bleeding usually slows or stops completely and the female is receptive to the male. She will usually ovulate during this time. Some females will bleed the entire heat cycle, but this does not mean that anything is wrong. In the last 10 days, she will still be enticing to the male, but is usually not receptive, as she is going out of heat. Please remember that these are generalities. Females have gotten pregnant on day three of the cycle or on day 28 of the cycle, so there is no "safe" time until she is completely out of heat.

Conception

Litters of puppies can have multiple fathers, because females ovulate many eggs over several days. It is vital that you keep your female away from all male dogs except the one you want to breed her with. And remember—males will do anything to get to a female in heat, so a backyard is not safe. If there is any sign that the puppies (some or all of them) are not purebred, the entire litter cannot be registered. Sperm can live in the female reproductive tract for seven days. This means it is possible that your female did not conceive until seven days after the last breeding date because she ovulated late. This means the last breeding date, while important, is not always exact. When breeding your female, it is recommended that you allow breedings to occur for no longer than six days (three days is optimum). The reason for this is that puppies will be conceived at different times because of the multiple days of ovulation. If another puppy is conceived one week after the first puppies are conceived it will be behind in its development compared to the first pups. The litter will be born when the puppies that were conceived first are ready. A dog is only pregnant for eight weeks, which means that even one week is a large chunk of that time. Puppies that are "runts" are usually actually premature babies that were conceived later than the rest of the litter. Controlling the breeding dates carefully can reduce the heartache of losing puppies.

Pregnancy

A female is pregnant for about two months, usually somewhere between 58 and 63 days. It is important to know the exact date of the last breeding. But it is also vital to realize she could have conceived up to seven days after that as well. This would explain why many dogs give birth 70 days or so after the last breeding date with no issues. "Long" pregnancies should not alarm you, as long as your female is acting perfectly normal and not having any discharge.

How To Tell If Your Female Is Pregnant: Once again, you must know the last breeding date!

1. At Day 32 or later, after the last breeding date, we can check a blood test here in the hospital for pregnancy. The test is not definitive until after Day 32.
2. The puppies can often times be seen on ultrasound at Day 28 after the last breeding in medium- to large-breeds of dogs, and at Day 32 from the last breeding in small breed dogs. On the ultrasound, the doctor should be able to see if the puppies have heartbeats and how large they are.
3. X-rays can be taken after Day 45, post-breeding. The puppies should have skeletons that are visible on the x-rays at that time. Before that time, the skeletons are not calcified and can be visualized. You can tell how large the puppies are and compare that to the size of the pelvic canal in the female so that you can make an educated guess about whether or not a C-section may be necessary. X-ray is the *only* way to get a count of how many puppies there are.

If Your Female Is Pregnant:

1. If you are certain your female is pregnant, you should change her to a good quality puppy food or increase her normal food amount by one half starting at about three weeks before the expected delivery date. Many owners have made their female look pregnant by feeding puppy food from the very

beginning, and unfortunately, not only do you not have puppies, but you also have to put the female on a weight loss plan.

2. You should *not* have your female on any "pre-natal" vitamins. A good quality diet is all that she should need. You can actually increase the risk of low calcium problems after the delivery if you start the supplement while she is pregnant.
3. The mammary glands will start to develop about three weeks out from the delivery. You will usually be able to express milk from the nipples about five to seven days before the delivery.
4. Until the last two weeks of the pregnancy, you should continue *moderate* exercise with the mom. Walking is the best choice. Climbing, jumping and ball catching are not a good idea past the first month of pregnancy. It is important to keep the female fit during pregnancy, because overweight females can have difficulty delivering the puppies and might require a C-section.
5. You should begin to take the female's temperature rectally twice a day about 10 days before the due date. You should keep a written log of the temperatures and times and try to take the temperatures at the same time each day. The normal body temperature of a dog ranges from 100 degrees to 102.5 degrees. About 12 hours before labor and delivery, the body temperature will drop in most females. This drop is usually fairly drastic, somewhere around 97 or 98 degrees. The temperature does not always drop, but it can be used successfully in about 80% of females. It is important to use this so that if she doesn't go into labor within about 12 hours of the drop, you can be aware that something may be wrong.
6. About a week before delivery, your female may become pickier about eating, but it is very important that she continue to eat. You may need to tempt her with canned food or some other treat to entice her to eat well.
7. Also about a week out, she will likely develop a very "saggy" or loose appearance around the vulva as the body prepares for the birth.

Labor & Delivery

Small Breed Dogs—Small-breed dogs often have trouble delivering puppies. A C-section is usually needed in those breeds, and also in English and French Bulldogs. Two things are vital in those breeds. First, x-rays should be taken to see the size and number of the puppies. Secondly, taking the temperature religiously is important, as these breeds may go into labor without showing outward signs.

Large Breed Dogs—In large breed dogs, an x-ray can also give a count of the puppies. Large breeds often have very large litters. This means the uterus sometimes gets tired before all of the puppies are delivered. Those puppies will remain in the uterus and the female will often not show any signs of this until the puppies start to cause infection. This is a very serious problem for the female. If you have a count of the puppies beforehand, you can feel good that she is "done" and relax.

Stage 1

The first stage of delivery is the anxious and nesting stage. Often, the female will stop eating, she may be unable to settle down, and may whine periodically. In females that have had puppies before, you may not notice this stage because they often show no signs. This stage is *not* labor, and may last up to 24 hours.

Stage 2—Labor

The next stage is the actual labor. You will likely see discharge from the vulva. You should be able to see abdominal pressing as the muscles contract—often the mom will lie down for the contractions. First time moms may think they have to go to the bathroom and want to go outside. It is fine to let them out, but do not let them go alone. Often a puppy will be born outside and the mom will come back inside without the owner ever knowing until it is too late. Some vocalize during labor and some do not. This is the stage that many small breed dogs decide is too painful and actually stop labor. Yes, dogs can do that. Knowing that the temperature has dropped is very important in these dogs so that you know they should be in labor.

Stage 3—Delivery

Once actual labor has started, the female should have a puppy in one to two hours. If that amount of time has passed and nothing has happened, **call your veterinarian immediately**. One to two hours is the same amount of time usually seen between each puppy. Sometimes, puppies come close together, but two hours is not unusual. If it is any longer than that you should **call immediately**. Again, this is why it is helpful to have a count of puppies beforehand. If at any point labor stops and you know there are still more puppies to be born, or a puppy becomes stuck in the birth canal, you should **call immediately**. In these situations, a C-section may be necessary and your veterinarian will evaluate the problems and decide that. Puppies can be born headfirst or bottom first. It is somewhat easier if they are born head first, but usually they come out about 50 percent in each direction.

The Placenta

The placenta (the sack around the puppy) can come out before the puppy, around the puppy or after the puppy. If the puppy has the sack around its face, please remove it yourself or the puppy may suffocate. The mother may eat the placentas—if she does, she may vomit them up later. This is normal. However, if you do not want her to do this, you can remove the placentas and throw them out.

The umbilical cord

You do not have to cut the umbilical cord if you do not want to; you can wait for the mom to do that. If she does not you will need to. First, take some sewing thread and tie a tight knot around the cord very near to the body of the puppy. After the cord is tied off, cut the umbilical cord about 1 inch away from the body of the puppy.

C-section

Please note that here at Canyon Pet Hospital, we will not do what is often referred to as a "scheduled C-section". This means we will not C-section a female simply because she is 63 days out from the last breeding date. Because of the possibility of conception being later than that, the chance of opening up the uterus and finding puppies that are not fully developed is high. Those puppies will not survive. We need to feel confident from examination and from the signs she is showing that she is in labor before we will perform a C-section. This means that we may be performing a C-section at 2 a.m., which is not necessarily convenient for anyone but

mom and the pups. But since they are the important ones in this situation, it is best to wait and C-section on their schedule, not ours.

Post-delivery

The New Mom

Once the delivery is over, the mom should settle in and relax. She should clean up the puppies and encourage them to nurse. Nursing releases the hormone oxytocin, which increases uterine contractions and helps labor to continue. This will cause cramping and may make her not want to eat. You may need to tempt her again with canned food, chicken or cottage cheese. If she does not eat well with encouragement within the first 12 hours, **call immediately**. The female should also drink a lot of water, as it takes a lot of fluid to make milk for her pups. For at least the first week, the food and water bowls should be right by her bed to make it easy for her to get to them whenever she wants. *Now* is the time to start a calcium supplement for the female. It is especially important in small dogs, but can also be important for large dogs as well. Ask your veterinarian for the correct dose of calcium for your female.

What to Expect

The mom will have some vulvar discharge after giving birth—six weeks is not abnormal. The discharge may be bloody or blood-tinged but should *never* be yellow or green. It should also never have an infected smell to it. Mom should never act sick. She should be willing to eat and drink at all times. She may have some diarrhea in the first few days because of the cramping in the abdomen, but she should not have any vomiting after the first 12 hours. Resist the urge to bathe or clean the female's mammary gland area. You can clean the rear end or the legs but not the mammary glands in the first two weeks. The reason for this is that the puppies' eyes and ears are closed for the first two weeks, and the sense of smell is all they have. If you change how the mom's mammary glands smell, you may prevent them from recognizing the area as the "dairy bar," which may affect their nursing.

The Puppies

For the first two weeks, the puppies basically sleep and eat. If their little bellies aren't firm and full when you touch them, or if the puppies cry often, the mom may not be producing enough milk. If you think this might be the case, **call your veterinarian**.

Post-delivery complications

Eclampsia

This is a condition of low calcium blood levels in the female. This can occur up to about five weeks after the female gives birth. This is a life-threatening situation for mom. As the calcium levels drop, the female's muscles and nerves are unable to function normally. She will become weak, have uncontrollable tremors in the muscles and she may start to have seizures. At the seizure stage, things become deadly for the female. If you notice any

of these signs, **call your veterinarian immediately**. Even if you are supplementing your female with calcium, this can still happen so please do not ignore the signs. Also, if signs have begun, it is too late to start or increase oral calcium dosages—you will need veterinary help.

Mastitis

This is an infection in the mammary tissues. The first sign of a problem is a firm, painful gland that the mom doesn't want touched. The gland will be redder than the others and may even be a dark red or purple color. Once the condition becomes more serious, the gland may abscess, rupture and drain. Although the abscess sounds horrible, this is not the biggest concern for the female. This condition can be life threatening. Because the mammary tissue has a large blood supply in order to make the milk, the bacteria causing the infection has access to the entire body through those vessels. The bacteria can go throughout the body and cause an overwhelming infection referred to as septicemia. You will need veterinary help to get the infection under control, so don't hesitate to call as soon as you notice signs.

Pyometra

This is a uterine infection that usually occurs after delivery if there is a puppy still remaining in the uterus, or possibly if a puppy remained stuck in the birth canal for a prolonged period of time. The signs of a uterine infection range from infected discharge coming from the vulva to a female who won't eat or is vomiting, or simply a female that is acting as though sick. If a pyometra is diagnosed, the only way to save the female is to spay her, which removes the uterus. If you think this is a possibility, **call immediately**.

Weaning

The Food

Puppies are usually old enough to start trying solid food at about four weeks of age. As long as they are eating well, they can be weaned off mother's milk completely at about five to six weeks of age. When you start the puppies out with their first food exposure, you should start with a very soupy mixture of puppy food and warm water. It is not necessary to use puppy milk replacement to mix with the food, as that may cause diarrhea. The mixture should have the consistency of applesauce. You should put the mixture in a very flat pan, like an old-style cookie sheet. The puppies will do more walking through this mixture than eating it so do put this in a very easy-to-clean place. Let the puppies lick it off of each other and themselves and they will quickly get the idea that it is good to eat. As they are eating better and better, you can mix less and less water in the mixture. Small breed puppies should *not* be on completely dry food until they are at least three to four months of age.

Finding Homes for the Puppies

Please remember, even though the puppies are weaned, they are *not* ready for new homes. Puppies should *not* go to their new home until at least eight weeks of age. There is a very important socialization period from six to eight weeks of age where puppies learn from their mom and other littermates how to be a dog. Puppies sent to new homes too early have a much higher chance of behavior problems later in life.

Veterinary Visits and Vaccination

Puppies need to have a thorough veterinary check up and their first set of vaccines and deworming at about eight weeks of age before they go to new homes. This ensures the new owners that you have done everything you can to send a healthy, happy puppy to their home. Puppies will need a series of three to four vaccinations—the last being given after the puppy turns four months old—to be considered completely vaccinated. Please make certain that the new owners understand this before your puppy goes to their new home.

When Puppies are Done Weaning

On the day of the complete weaning, you should only feed the mom about half of her normal amount of food for the day. If she is a large breed dog, you can hold off food for the full day and only allow water. This will help the body to realize it is time to dry up the mammary glands and stop producing milk. When females stop nursing, their glands may get quite large and swollen and painful for several days. If they appear to get infected, please call your veterinarian. If they are just uncomfortable, you can try warm-packing the glands to relieve some discomfort. *Do not* milk the glands out. If you do that, it is like the puppies are still nursing, and their body thinks it needs to continue making milk. Only if no milk is used will the body send the message for the glands to stop the production. Cutting the food down the first day will give a quick signal to the body that nutrition has dropped and that it should slow down the milk production and help get her feeling more comfortable faster. The next day, the female should go back on her regular pre-pregnancy feeding program. If the female has lost a lot of weight during the pregnancy and nursing, you can feed her extra until she gets back to the correct weight.

Post-partum Effluvium

This is a hormonal state in the female that occurs about two months after delivering puppies and causes the female to "blow her coat". Large amounts of hair will start falling out and there may even be some small areas that may be a bit bald. This is *not* an itchy condition, it just involves the hair is falling out. If your female is itching, call your veterinarian. She may have a skin condition that could spread to the puppies. As far as the normal post-partum hair loss, there is nothing really that you can do; she is just going to have a thin coat for a while. Everything will return to normal after that.

Please remember, if you have any question, or if things just don't seem right, don't hesitate to call. Waiting may mean serious consequences for your female or the puppies. Call us and get things checked out if you are worried—you can never be too careful!