

What a New or Prospective Breeder Needs to Know

by Anne Everett



PART I

STARTING OUT

Beginning a breeding program can be bewildering in terms of all the knowledge required to get it right, the result being, that on average a new breeder lasts five years or less. Those who persevere are either fortunate to have a good mentor, or like myself went to every reproductive and associated workshop they could find and as well as learned in the trenches so to speak through experience. Breeding isn't just taking Muffy to Studly for a "play date" down the road. Prospective breeders should spend at least five years in the dog area(s) of their choice (breed ring, hunt tests, agility trials, etc.) showing a dog, running a dog, training a dog, observing different dogs, going to as many educational events as possible, talking to people and getting a good basic foundation in the discipline of your choice.

Once you know what your ideal dog looks like and works like, then you have a basis from which to move forward. At that point you will hopefully have made enough connections so that a good breeder will consider selling you a quality foundation bitch. Your entire future breeding program depends on this foundation. Like a house a poor foundation does not stand the test of time, while a good one will. Once you get your foundation bitch, then get her titled in your chosen field and get her clearances. She needs to get out there and be seen, as you are laying the ground work for getting appropriate homes for her first and subsequent litters of puppies as well as establishing your reputation in the dog world. When it is time for breeding, pick the best male you can find who complements her. You need to know enough about genetic issues in the major lines at this point, as well as structure, temperament and working abilities to make a good decision as to the pairing. If your girl doesn't get her clearances or ends up not working out for your chosen venue then spay and place. It can be heartbreaking but if you are serious about developing a respected breeding program it needs to be done.

An internet presence is required in our times. A well-designed attractive website will pay for itself many times over. The website should be professional in appearance, make it easy to contact you, have pictures and write ups of your dogs and their accomplishments, state very clearly what type of dog you are breeding – e.g. show or field, and list any litters you have upcoming. A website is a valuable screening tool for prospective buyers. Don't be cagey about price, expectations, how you allocate puppies and your conditions of sale. They should all be up front on the site for people to see. This will save you endless hours on the phone dealing with completely unsuitable potential buyers. Some breeders use written questionnaires for their initial screening, I prefer phone calls as verbal questions can often elicit a more telling response than written ones. Sales contracts can be posted on the site or sent to interested puppy purchasers who have made it through the first screening process. At the minimum contracts should cover health warranties, registration, breeding and return policies. Contracts range from multi-page to single page and often evolve over the years as different situations are encountered. A final word about contracts, always honor your part of them. Your reputation as a breeder depends on it.

PRE-BREEDING PROTOCOL

Your bitch is now over two years of age and has been earning her show, field or agility/obedience awards. Do not expect many titles in athletic events early on because, to prevent traumatic injury from quick turns, jumping and running, dogs should not seriously compete until their musculoskeletal systems have matured (at around a year of age). As she matures and shows promise, people will begin to notice her and start to ask if you might be breeding her soon. As you consider breeding a litter, keep in mind that time out for breeding will set your training back a year in many sports even for a very fit bitch. But, if you decide to go forward with planned breeding, your first step, if not done already, will be to finalize her clearances. Clearances required include Orthopedic Foundation for Animals (OFA) hip, elbow, cardiac and eye clearances (thyroid clearance is strongly recommended as well). A cardiac clearance, good for life, can be obtained from a board-certified veterinary cardiologist once a bitch is 12 months old. Eye exams and OFA certification can be obtained at any time, but eyes need to be examined every 12 months by a canine ophthalmologist to keep a certification current. While preliminary hip and elbow x-rays can be done before 24 months, a dog needs to be at least 24 months before official OFA x-rays can be taken. Find the most experienced vet you can to do this work as positioning is vital to getting a good picture. Once the x-rays are taken and forms filled out, they will be submitted to the OFA for evaluation. You should hear back within a few weeks.

In addition, make sure vaccines are current as required by regulations in your area and de-worm your bitch. Through genetic testing and/or pedigree search, you should also have information about the pcrd-PRA (the progressive rod cone type of retinal atrophy), GR-PRA1 & GR-PRA2 (other forms of inherited retinal atrophy), NCL (neuronal ceroid lipofuscinoses) and ICT (ichthyosis) status of your girl. If you don't know what these are, you need to do more research before breeding. The presence of these genes in Golden Retrievers are either known at birth via parentage or blood sample/cheek swabs can be sent for testing. Test results can take a few weeks to come back. These tests should be done as early as possible in the first year as the results will influence your choices for your female's future as well as your choice of a stud dog down the road.

Once the test information is in and all looks good, then it is time to make plans for your breeding and get it advertised on your website as well as on Facebook or other social media and word of mouth.

It is your personal decision to sell pups on an open or limited registration. Another option to consider is whether or not to require prospective buyers to make a deposit when reserving a pup. Keep in mind that the pups' optimal period of socialization with their new owner begins at 49 days of age and increased time with littermates may affect trainability. Pups that are not spoken for should be placed in individual foster homes and receive socialization and training while waiting for their permanent homes. The socialization and training that occurs between 7-14 weeks cannot be made up later.

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BASIC REPRODUCTIVE BIOLOGY

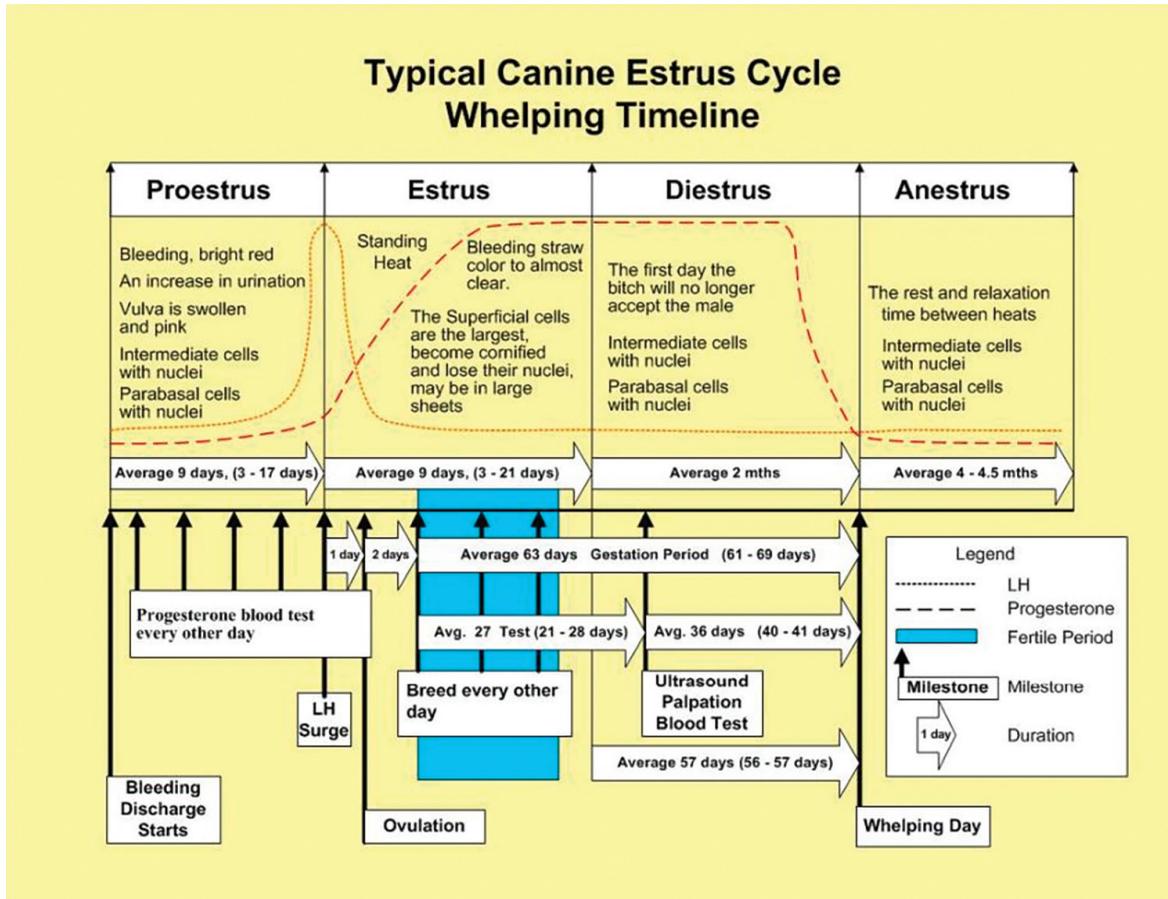
Contrary to popular opinion, it is not all up to the stud dog. It takes two at most stages of the process. In a nutshell, the number of pups depends on the number of eggs that a female produces. Poor sperm quality can certainly influence whether a breeding takes or not, but a healthy stud dog with good libido and a normal sperm count should have no problem producing puppies if the eggs are there and ready to be fertilized. More about that later. Puppy gender is determined by the sex chromosome contributed by the stud dog. All dogs have two sex chromosomes either XX (female) or XY (male) and contribute one to each puppy. The female can contribute only the X, a male can contribute an X or Y. XX puppies are female, XY are male. There is a 50 percent chance of getting either a female or male puppy, however due to the small sample size of litters (the larger the number the greater the chance of meeting genetic numerical predictions), litters can vary greatly in terms of gender split.

SUCCESSFUL BREEDING – IT’S ALL IN THE TIMING

Estrus (the heat cycle of a bitch) can start any time from six months to two years of age (and in some cases older). Three stages are characteristic of estrus in dogs which can last 18-21 days. These are proestrus, estrus and diestrus. The term anestrus refers to the time period between heat cycles. The easiest way to identify proestrus is when your bitch starts to pass a bloody discharge. This can be preceded by a swelling of the vulva. Male dogs (as well as other females) may also

start to appear interested in your girl in the weeks prior to proestrus. If you haven’t kept track of when proestrus starts, your other dogs (if you have them) will often tell you by an increased intensity of the sniffing behavior. The males will often start dancing with ears back around the bitch, trying out their courting two-step, as I refer to it. You will recognize it when you see it. Proestrus can last for 7-10 days. Most females are not receptive during this time period but some are, so once you notice any discharge house your dog in a secure place for the remainder of her season except when she is going to be bred. An ex-pen in a backyard or in your basement is not a secure place for a bitch in estrus. Our rule here is housed in a crate when not with one of us, with two closed doors between the female and any males for the three weeks she is in season. Estrus generally starts around day 9-14 and can last 3-7 days or more. The vulva is very soft at this time and the discharge is a light pink. This is the stage when most females are flagging (tail raised up and to the side) and are actively looking for a male. Once a female ovulates, it takes two days for eggs to become fertile and they are fertile for about 48 hours. Sperm from a natural breeding will live from 5-7 days. I have heard people say “oh we had an oops on day four so no worries she won’t get pregnant” and be surprised nine weeks later. Following estrus the bitch moves into diestrus, which lasts about two months – the same amount of time a pregnancy would.

The information above is the norm but variability in timing does happen. I have had females accept a male at day five and have also had a successful breeding at day 18. The



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day 18 breeding was decided upon using progesterone testing for ovulation. The bitch had missed a couple of breedings before and we were trying to figure out why. Turns out we were breeding far too early. The value of knowing when your girl ovulates even when you are doing a live cover is invaluable. The relatively small amount of money a few progesterone tests will set you back is well spent to ensure a successful breeding, a happy stud dog owner and a delighted waitlist of puppy buyers. It will also provide the essential information of when your bitch will whelp.

All of the above concerns a live cover. However, with the improvements in reproductive technology breedings using fresh chilled and frozen semen have become increasingly commonplace. Numerous stud dog owners collect, freeze and store semen at well-known canine reproduction centers such as ICSB (International Canine Semen Bank) around North America. If you elect to use frozen semen, knowing exactly when your bitch ovulates becomes a key to success and access to a high-quality reproductive clinic is essential. At this time 90 percent of the breedings that I do use frozen semen. Using frozen and fresh chilled semen dramatically increases the gene pool that we can access for our bitches, without the stress of shipping our girls. Progesterone testing is vital here. Frozen semen lives about 12 hours so the timing must be right on. Both surgical implants and transcervical insemination procedures are successfully used with frozen semen. Fresh chilled is a little more forgiving with a TCI or simple AI often doing the trick. In either case, this is not a time for guesswork or to try and save a little money by not doing a series of progesterone tests. The old saying "well she is flagging so must be ready" just doesn't cut it here. If you do go the frozen semen route, it pays to get a post thaw report from the collecting center. Once a male is collected and frozen, a pellet or straw is thawed by the collecting veterinarian or trained technician and examined under the microscope. My ideal thaw back report is motility of 80 percent or better and a high number of normal sperm (with straight tails and one head) referred to as "good morphology." Having said that I had a frozen surgical implant breeding done once with sperm of 40 percent post thaw motility as well as less than stellar morphology and ended up with eight puppies. It was nail-biting time though until the ultrasound at 28 days. I attribute the success of that breeding to the excellence of my reproductive veterinary team.

An ultrasound at 28-30 days is an ideal way to determine if your bitch is pregnant or not. The ultrasound will confirm pregnancy and give a basic idea of litter size. The counts tend to be fairly accurate with a litter size of 6-7 or less, but once numbers climb the results become less accurate. In any case the results will allow you to plan ahead. An x-ray will not do the trick as puppy skeletons do not calcify until late in pregnancy. I find the use of x-rays in canine reproductive screening puzzling. We certainly do not x-ray a human fetus to see what's there and the information on the damaging effects of x-rays on tissue is well known. I cringe when I see a canine pre-whelp x-ray on social media with a "guess the numbers" question. The only time I will use an x-ray is if we are at the end of a long difficult labor, the bitch is exhausted and I am pretty sure we still have a puppy or two to be born. At that point I will x-ray the bitch to determine puppy placement before giving a shot of oxytocin to hurry things along. Oxytocin can be a life saver, it can also be a killer if administered

at the wrong time. Potential problems resulting from inappropriate Oxytocin use include placental separation too early from a puppy still in the uterus, or a ruptured uterus if a puppy is stuck. I generally use it only as outlined above and also as a clean-out shot to speed the passage of any leftover afterbirth material and tighten up the uterus, particularly after the delivery of a large litter.

CARE OF THE PREGNANT BITCH

Prior to and following the breeding, make sure that the prospective mother is on a good diet of dog foods AAFCO rated for "All life Stages" or "Puppy." Alternating between a selection of 4-5 high quality foods that agree with her may provide nutrient variety. There are several stages of pregnancy that need to be managed somewhat differently. The Implant of fertilized eggs occurs around 17-24 days and we are extremely careful for the first month. Our bitches are kept fit but not exercised over rough ground, not allowed to over-heat, swim in cold water (in the winter) or play roughly with other dogs. Now is certainly not a good time to go to a dog park. Come to think of it – no time is a good time to go to a dog park (more about that later....). During the next stages right up to whelping the girls are allowed to run in safe areas, they retrieve if they wish and go for long walks with me. Their diet remains the same good quality dog foods, no calcium supplements at this time, no supplements at all except daily high-quality Omega 3 (fish oil) supplement. Omega 3 is called an essential fatty acid because it cannot be made in the body but must be consumed in the diet. Since it is destroyed by heat, light and oxygen, it is best when added to the food immediately before feeding. Human quality fish oil supplements are generally superior to most brands marketed for dogs. A rule of thumb for checking oil quality is to taste the oil. If it tastes fishy it's oxidized (rancid). Fresh, properly refined oil has no fishy taste. The dosage for dogs is 20mg EPA & DHA (combined) per pound of body weight per day. Dogs lack the enzyme (delta-6 desaturase) necessary to convert flax (alpha linolenic acid) to omega 3 so the flax supplements that help humans increase Omega 3 levels are not a useful source for dogs. Omega 3 fats are essential to heart, brain and eye development and studies have shown that pups supplemented with EPA & DHA have superior visual acuity and trainability.

Eclampsia, which can kill a bitch, is caused by a low blood calcium. The metabolic mechanisms of this problem are complex and involve parathyroid hormone (PTH) which is essential in regulating blood calcium levels (increase in PTH secretion causes increased blood calcium levels). The current recommendations for feeding "growth" type (puppy) diets through the last trimester and lactation are an effort to regulate a steady PTH/Calcium state in the dam's body. Adding calcium will 'unbalance the balanced diet'. The mechanism by which additional dietary calcium may actually predispose to eclampsia is that it can cause a downregulation of PTH secretion at the time when it's really needed to maintain sufficient levels of calcium in the body for uterine contractions and lactation. Eclampsia is a life-threatening emergency; your bitch could be dead in 30 minutes without immediate attention. Intravenous calcium supplement is preferred but all breeders should have some type of oral calcium with 500 mg Vit D on hand just in case. Give it before loading up for the

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trip to the vet. Symptoms of eclampsia include loss of coordination, eyes rolling back in the head and seizures. Although treatable if caught early, proactive management through proper nutrition during pregnancy is the best way to prevent eclampsia.

Quantity of food is not increased until the final 2-3 weeks of the pregnancy and by how much and when depends on the condition of the bitch. She should have a thin layer of fat over her ribs. Too much, she is getting too much food, too little not enough food. There are formulas out there for calculating food amounts, I just go with my gut and what my girl is telling me. By the end of the nine weeks a bitch is generally eating two to three times what she normally eats divided into four to six small meals a day as the room taken by growing fetuses starts to limit stomach capacity. A fit, leaner bitch will have an easier whelping than an overweight, sedentary one.

DISEASE TRANSMISSION AND SANITATION

The diseases at the forefront of every breeder's mind should be parvovirus, distemper, herpes and kennel cough. In order to protect our litters from these diseases it is necessary to have an understanding of disease transmission which can occur through indirect and direct contact. Direct contact can be dog to dog, when dogs touch each other whether in sexual or non-sexual contact, or through droplets that can be spread via a sneeze or cough.

Indirect contact can be via airborne transmission, touching contaminated objects such as flooring and toys, ingesting contaminated food and drinking water, and from environmental reservoirs like the soil.

Kennel cough and herpes can be transmitted via direct and indirect transmission similar to the common cold and flu viruses. Contact with coughing dogs and with asymptomatic but infected dogs can transmit both diseases. Puppies can also contract herpes if their dam becomes ill in the last few weeks of the pregnancy, or from direct contact after birth. Kennel cough and herpes can be transmitted via shared water bowls, contaminated floors and we can bring it home on our clothing or hands if touched by a sick dog. A good rule of thumb is no contact with outside dogs during a pregnancy and that goes for the other dogs in the house as well. It is not a good idea to take everyone to a dog show or working event when you have a bitch at home who is 5-6 weeks pregnant.

Parvo can also be transmitted through direct and indirect contact. Parvo virus shed by dogs in feces will be transmitted if another dog smells or licks the feces. Indirect contact is from contaminated surfaces both indoor and out, as well as human shoes, clothing and skin. As parvo can live for several months on indoor surfaces and up to a year or more in the soil, extreme proactive measures need to be employed to avoid this deadly virus. Biosecurity protocols for visitors should include shoe disinfecting trays at the entrance to the property and clean clothes plus hand washing before any engagement with the pups.

Although distemper is very short lived once in the environment (and most disinfectants can kill it), it also can be transmitted both directly and indirectly. Sneezing or contamination by a dog touching a sick dog can transmit distemper, as can drinking from contaminated water bowls and contact with human skin or clothing which harbors the virus. Dogs

that have recovered from the disease can also shed the virus for up to several months following their recovery.

Together with dog shows and working events, areas like dog parks should be avoided when you have a pregnant bitch at home. Dog parks are one of my pet peeves in any case, being reservoirs for disease as well as often populated by ill-mannered dogs who can create behavioral fear-based issues in younger dogs as a result of bullying. In addition, the ill-advised move away from effective vaccine protocols by many dog owners has resulted in outbreaks of disease such as parvo and kennel cough in areas previously free of the diseases. Transmission of fleas and subsequently tapeworm also occurs in many dog park areas.

IN THE PART II WE WILL DISCUSS:

- Whelping
- Socialization and Stages of Puppy Development
- How to Choose a Puppy for Your Breeding Program
- Vaccination Protocol
- Sending the Puppies Home

Recommended Reading

American Animal Hospital Association. 2018 Vaccine Guidelines

www.aaha.org/guidelines/canine_vaccination_guidelines.aspx

Battaglia, Carmen. 1990. Breeding Better Dogs

Battaglia, Carmen. Developing High Achievers.

www.breedingbetterdogs.com/

Hastings, Pat and Ann Rouse. 2008. Puppy Development.

Another Piece of the Puzzle

Holst, Phyllis. 2000. Canine Reproduction

Lee, P. Muriel. The Whelping and Raising of Puppies

Savant, Myra. 2005 Canine Reproduction and Whelping

Savant, Myra. 2005 Puppy Intensive Care

www.todaysveterinarypractice.com/role-of-dietary-fatty-acids-in-dogs-cats/

www.akc.org/expert-advice/nutrition/fish-oil-for-dogs/

www.akc.org/expert-advice/health/boosting-puppy-brains-for-trainability-with-omega-3-fatty-acids/

Recommended Workshop/Seminar Presenters

W. Jean Dodds DVM, www.hemopet.org

Pat Hastings, www.dogfolk.com

Robert Hutchinson DVM, www.northviewvet.com

Myra Savant, www.myrasavantharris.com

Gayle Watkins PhD www.avidog.com

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Whelping

If you have done progesterone testing, you will know the whelping date of your girl, 63 days post ovulation. As it can be difficult to determine the exact hour of ovulation, generally 62-64 days post estimated ovulation is safe. If your bitch starts to go into labor before that time or hasn't gone into labor by day 64, then seek immediate veterinary assistance. Entire litters and dams have been lost due to lack of knowledge of ovulation dates, resulting in only an estimate of when the litter was due. A timely c-section could have changed this tragic result.

A bitch's temperature will decrease 24-36 hours before whelping, generally a drop of a couple of degrees – from 101.5 to 98.0 degrees Fahrenheit is common. Starting to take the temperature about a week before the due date (which you know because of progesterone testing) will give you a baseline to work from. As temperature variations can occur between morning and evening, I generally take the temp 12 hours apart. Once we are about three days from whelping temperature readings can be taken three times a day as well as in the wee hours if I am up checking on the bitch. By this time everything is ready. The bitch has been in her whelping box to sleep for the past few nights, whelping supplies have been checked and restocked if necessary and my wonderful vet is on speed dial. A whelping box should be in a warm place close to or in your bedroom, whelping supplies should include at the least: gloves, clean cloths and rags, an oxygen cylinder with regulator and delivery hose (for puppies, the dam and sometimes me after a long night), betadine or iodine, KY jelly or any sterile lubricant, Calsorb (or other calcium paste), scissors, dental floss (for trying off cords), a DeLee trap suction tube (or bulb suction device) for suctioning out slow starting puppies, a warming box – I use a large Tupperware box with a heating pad in it covered with fleece, plastic bags for the afterbirths and used towels, vanilla ice cream (for the dam between contractions and yourself if needed). I have found vanilla ice cream invaluable over the years as it supplies both glucose and calcium to a laboring mother. Often after a dish of melted ice cream, contractions increase or start in a stalled labor and out pops a puppy.

Stage one of labor can seem to last forever and can go on for up to 24 hours. I define stage one as lots of panting, no real pushing, some digging and occasionally some bitches vomit. The cervix is opening up during this time and as long as you aren't seeing green discharge, everything is OK. Anything green indicates a detached placenta which is an emergency. If your girl goes more than 24 hours without producing a puppy seek veterinary help as she may be exhibiting Primary Uterine Inertia and a c-section may be required. Be particularly prepared for PUI if the ultrasound showed only one or two pups or if the ultrasound showed a very large litter.

Stage two of labor begins when pushing starts as puppies begin to leave the uterus and enter the birth canal. My rule of thumb is 45 minutes of pushing – no puppy – I text my vet; 60 minutes of pushing – no puppy – we are on our way to the vet as the bitch is exhibiting the signs of Secondary Uterine Inertia. Before contacting the vet, I will put on a lubricated glove and do an internal exam of the bitch to see if I can feel the pup. If a pup is present sometimes walking the bitch (make sure you are ready to catch a puppy) or adding (sterile)

lubricant to the birth canal can help the puppy get out with gentle help from you. If the puppy gets half way out and the membranes/tongue are pink, then usually you can get the rest if it out by holding what the mother produces with each contraction but do not 'pull the puppy' unless you are holding the umbilical cord or you may produce a hernia. Very gentle traction toward the dam's rear legs may help but be sure to clear the nose and mouth as soon as they are outside of the mother as the pup will begin to make breathing efforts. Oxygen can be used to ensure the puppy stays oxygenated. Another interesting point is that often the car ride to the vet will result in a stalled birth process starting up again, so take your whelping kit with you for the drive.

Although approaches to newborn puppies vary, my priority is to make sure the puppy is breathing by taking the membranes off its face and suctioning out the mouth and nose with the DeLee trap. Please do not swing a puppy to get it breathing, the results can be similar to shaken baby syndrome in humans. Only then do I have a look at the cord, tie it off and cut it if necessary. I cut the cord between the mother and the tied-off section of the cord. Although I let the mother eat a placenta or two, most of them are gathered up and disposed of. After the puppy is breathing and dried a bit, it is presented to the mother for that first very important meal of colostrum.

One note regarding c-sections: a maiden bitch who has just had a c-section needs monitoring until she is completely free of the affects of the anesthetic. As they wake up it will take a while for them to figure out the puppies and what is going on. They may growl at their newborns or not want anything to do with them. Patience is the key here. You may need to stimulate the newborns bowel and bladder function and in extreme cases tube or bottle feed the babies until the bitch's maternal instincts click in. It can help immensely if the puppies get their first meal of colostrum before the dam wakes up at the vet – something you need to make sure happens. Fortunately, this is usually a first litter phenomenon.

An ideal litter size (pups on the ground) in terms of the need for a reduced amount of outside assistance is two to eight puppies. A singleton and a litter larger than eight require some different management techniques. Whatever the size, a litter should go through early neurological stimulation and early scent introduction exercises. Although opinions vary on the efficacy of both, what they promote is handling of the puppies, the importance of which cannot be underestimated. I also believe that both programs result in increased stability in adult dogs. Singletons need a specific program, challenging environments, careful monitoring for extreme weight gain and possible development of swimmers syndrome, introduction to similar age puppies of another litter if possible or at the least puppy-safe adult dogs, plus any set of stimulus or exercises that mimic physical and mental challenges that would be presented by absent littermates such as teaching bite inhibition and impulse control. Large litters present another set of challenges, often rotational nursing is needed to make sure all the puppies are getting their share, early weaning or supplementing with solid food can be helpful to the mother. Mastitis in the bitch is another condition to be watched for in a very large or small litter – although it can be found in bitches nursing all sizes of litters. Mastitis is infection in the mammary gland or teat. Symptoms include a hard, hot, red mammary gland. Aggressive treatment with

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warm compresses and antibiotics is required and pups should not be allowed to nurse from that teat.

Socialization and Stages of Puppy Development

Age and development stages dictate the type of social interactions best suited for the youngsters. The main requirements of the first two weeks are warmth (the optimal room temperature for the first week is 84-89 degrees F, this drops to 80 degrees F the second and third weeks and 70 degrees F thereafter) and the presence of their mother. Puppies must have an external source of heat when their mother is not in the whelping box with them, however avoid too much heat, which can be detrimental to both dam and puppies. A heating pad or warmed rice bags can be used as a replacement for maternal heat if the dam needs a break. Puppies will let you know through loud vocalizations when they are too cold or too hot. Puppies at 1-2 weeks of age haven't found their backward motor skills yet, so often a pup can get stuck in a corner. Continuous loud vocalization is a sign of a problem, whether temperature related or not. There is a large body of research that indicates gentle stress can be very beneficial in promoting dogs better able to withstand stress in adulthood. Early neurological stimulation exercises from day 3-17, coupled with early scent discrimination exercises during the same time period are an excellent way to expose newborns to stressors, which will improve neurological development. Regular nail clipping is also started during this period. Many breeders sleep in the same room with the puppies during the first two weeks, others have baby monitors that will alert them if something goes wrong.

Puppies rapidly develop during the third and fourth weeks. It is a good idea to place identifying clipper marks on various locations of their bodies so you can follow their individual progress until they are old enough to wear ID collars. Eyes should start to open from day 10-14, the puppies should be up on their feet, they are able to back up now and play behavior with litter mates has begun. The location of the whelping box in an environment that is stable with lots of noises and activity is ideal for this particular time. Exposure to noises is very important (I use Western and science fiction movies on TV for some interesting noise combinations, together with normal kitchen noises). Fear hasn't developed in a puppy at three weeks so this is when startle responses to noises and recovery should be encouraged in a puppy. The puppies should be handled daily and the dam allowed access to her puppies at all times. Vocalization and playing behavior is increasing. Around 3 1/2 weeks to 4 weeks is when a litter is moved to a bigger area – their play and living quarters for the next four weeks or so with a primary non-slip flooring. At this point small amounts of solid food are introduced and potty training begins. A whistle is also introduced when the litter is started on solid food and is blown every time food is put down for the puppies, laying the foundation for a reliable recall. From four weeks on they are being taken to different areas in the house daily for one-on-one time and exposed to a different surface each time. If the weather permits, we start to spend some time outside as a group with their dam. Visitors are encouraged at this point.

From 4-7 weeks (or whenever you send your puppies home) the life of a puppy needs to be a full one. Their indoor area should be complex with different surfaces, tunnels, play

objects, overhead challenges and a potty-training area. To promote a grass substrate preference for potty training, you can put slabs of sod on cookie sheets in their enclosure and just discard it to a bare place in your lawn every few days when soiled. Outside areas, if allowed by weather conditions, should be fenced and protected from heat and predators. Gang walks on a protected acreage are a wonderful pastime – generally we take all the pups (assigning two puppies to each human helper) along with their dam on walks around our 20 acres and the ponds. The area is securely fenced and gated so outside dogs cannot access the area. Starter pistol shots, feathers, live pigeons, bumpers and other field training items are introduced. At 6 1/2 weeks the pups are introduced to collars and weaning is pretty well complete. During the weaning process we are continuing to check the dam for any signs of mastitis as puppy teeth can puncture holes in the teats allowing bacteria to enter the area.

At seven weeks puppies should be temperament tested and evaluated structurally. A Volhard puppy test forms the foundation of all puppy tests used to evaluate performance dogs. As you progress in your breeding career there will be things you add to or modify with the Volhard protocol. In any case it is an excellent place to start and evolve from. The score sheets are easy to understand and use, and the scoring is straightforward. You will need an evaluator. A structural evaluation is invaluable as well. Here, no matter what your experience, it pays to bring in an experienced sporting dog breeder to cast a cold, critical eye on the puppies for the first time. I prefer one who breeds for the show ring as well as for performance. Videotaping the stacking and evaluation process is also a way of increasing your knowledge of puppy structure.

How to Choose a Puppy for your Breeding Program.

It can be difficult to choose a puppy objectively from a litter you have bred and this is where outside evaluators can be a huge help. We all have our favorites in a litter of puppies. However, if that favorite has an undesirable structural fault or a temperament that doesn't quite suit your goals for the puppy, then keeping such a puppy is not going to allow you to move forward with your breeding program. Your experienced evaluators are going to be able to help you identify the best all-around pick puppy for you in the litter. We are often dealing with nuances here, but the goal is to keep a puppy that is at least as good as or preferably better than the dam. If there is nothing in the litter that meets these criteria, don't be worried about not keeping a puppy, try again with the next breeding.

Vaccination Protocols

Vaccines and vaccination protocols have come under increasing scrutiny over the past two decades. There is a huge body of research on human and canine vaccinations and I encourage every breeder to educate themselves regarding the pros and cons of vaccines so that you can make your own decision regarding the protocol you follow, keeping in mind the laws regarding vaccines in your part of the world. For those interested, my own protocol is as follows: week 7-8 parvo/distemper/coronavirus, week 10-12

What a New or Prospective Breeder Needs to Know, *continued*

parvo/distemper/coronavirus, week 14-16
parvo/distemper/coronavirus. A booster of parvo and distemper is given at 12-14 months of age. After that I titre every few years. Rabies is given at six months of age with a booster at 18 months. A rabies vaccine is not required by law where I live, however because we hunt our dogs and they can possibly come into contact with rabies-bearing wild animals I have them vaccinated. If you live in a part of the country where canine rabies vaccines are required by law, then your protocol will be different. Non-core vaccines such as Leptospirosis, Lyme and Influenza should be administered separately but not until all of the puppyhood vaccinations for the core diseases have been completed. The takeaway message here is that vaccine protocols are somewhat fluid depending on location and law and definitely should not be viewed as a one protocol fits all deal. One thing that is obvious after looking at the literature, the administration of a full panel of vaccines every year is definitely not required and such protocols have been implicated as a causative factor in a number of immune mediated problems in canines.

Sending the puppies home

The big day is rapidly approaching when your litter will begin to head off to their new homes. A pre-travel checklist could look something like this

- Vaccinations, worming and health checks booked or complete, permanent identification in place (Canada)
- Travel arrangements made. Airline or other bookings made if needed, travel crates purchased, travel/flight health documents organized
- Pick up times booked. I highly recommend booking separate pick up times for buyers coming to pick their puppy up. An hour for each buyer gives you time to go over the contract, answer any questions and deal with any last-minute concerns.
- Puppy guides emailed or printed out for transfer to buyers. Puppy guides should contain early training and housebreaking tips, feeding and vaccination protocol suggestions, parasite control, behavioral management and anything else you see fit to add to the information. This is a separate document from the contract/warranty. Registration application documents are included in the U.S. In Canada, the breeder applies for the registration documents and pays the registration fees.
- A safe toy (that cannot be ingested) for each puppy that will be travelling
- As breeders we should keep in touch with all of our puppy buyers throughout their lifetime. Ninety-nine percent of buyers are generally very positive to deal with, however, very occasionally the difficult buyer/owner will appear. Difficult people are sometimes a reality of our chosen profession. My only suggestions are to treat them as we would want to be treated, no matter what the provocation, and always, always honor your contract.

Establishing a respected breeding program is hard work but very rewarding. You won't get rich in monetary terms, but the friendships you make along the way are priceless and time with dogs is always time well worth wasting! Becoming a serious student of the breed requires time and effort. While

a good mentor is priceless, in their absence you can succeed by working hard, educating yourself and conducting your breeding operation in a professional manner. Good luck!

Recommended Reading

- American Animal Hospital Association. 2018 Vaccine Guidelines
www.aaha.org/guidelines/canine_vaccination_guidelines.aspx
- Battaglia, Carmen. 1990. Breeding Better Dogs
Battaglia, Carmen. Developing High Achievers.
www.breedingbetterdogs.com/
- Hastings, Pat and Ann Rouse. 2008. Puppy Development. Another Piece of the Puzzle
- Holst, Phyllis. 2000. Canine Reproduction
- Lee, P. Muriel. The Whelping and Raising of Puppies
- Savant, Myra. 2005 Canine Reproduction and Whelping
- Savant, Myra. 2005 Puppy Intensive Care
www.todaysveterinarypractice.com/role-of-dietary-fatty-acids-in-dogs-cats/
www.akc.org/expert-advice/nutrition/fish-oil-for-dogs/
www.akc.org/expert-advice/health/boosting-puppy-brains-for-trainability-with-omega-3-fatty-acids/

Recommended Workshop/Seminar Presenters

- W. Jean Dodds DVM, www.hemopet.org
Pat Hastings, www.dogfolk.com
Robert Hutchinson DVM, www.northviewvet.com
Myra Savant, www.myrasavantharris.com
Gayle Watkins PhD www.avidog.com

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