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## Why not seven weeks? The Forty-ninth Day Revisited

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(opinions are those of the author)

Why reprint the article that appeared in Gun Dog 13:5. Apr/May 1994? Wasn't the point made? Should anyone still want to take home their brand new pup at less than ten weeks? The reasons to reprint are several: 1) Breed clubs and dog clubs from across the United States and USA as well as from far off places like Australia and Hawaii in one direction and England and Germany in the other have asked permission to reprint it in their journals, newsletters and magazines. 2) There are many new readers of Gun Dog who did not have a chance to read it though many heard about it through their clubs. 3) Breeders have asked permission to copy the article to use as a handout to prospective buyers. 4) Prospective buyers have asked for copy privileges to give to breeders from whom they thought they would buy a pup. 5) The message either didn't get through or wasn't accepted (believed) by a lot of people with a solid mind set.

Breeder trying to convince buyer, buyer trying to convince breeder, clubs giving their membership something to think about, or a totally missed message, all might sound a bit far fetched. Hey, not at all; here are some examples. An acquaintance of mine decided he wanted to become a breeder so I lent him the original research literature on the socialization processes in dogs, about 600 pages of reported research. Some months later when I went to retrieve this chunk of my library and I asked him what he thought, his comment was, "That was a lot of heavy reading." Soon after he produced his first litter and moved the pups as close to the 49th day as he could. Obviously he had a gotta let 'em go at seven weeks mind set. And why not; he had just read an article in his club publication written by a pro trainer/writer with the opening sentence: "Be sure you get your pup at seven weeks." There was no reason given, no justification, not even a rationalization, just the statement.

Another example, this from a breeder who had been trying unsuccessfully for years to convince prospective buyers to wait until pups were ten to twelve weeks old. The copies were to be handouts to back up what had been argued for years. This person breeds a good number of top dogs yet has prospective buyers say, "If you won't let me have the pup at exactly seven weeks, I'll go to a breeder who will." And they do.

These are just some examples among many that have come in. One is of a breeder who should know better fighting buyers who do, one of a breeder who does know better fighting buyers who should, and one of a pro

trainer/writer who should just plain know better. I gather from the requests to reprint that have come in that there are more buyers who need convincing than breeders. Generally, breeders who have been out of their back yard and around the block are pretty knowledgeable. But especially the first time buyers seem to have this problem of being overly marinated in mythology. Or, maybe it's just a matter of good old B. S. baffling brains.

Whatever reasons were behind the requests for reproducing the article, they were strong enough for the editor of Gun Dog to feel the article should appear again and I agree. So here it is with some minor editorial changes but no changes in the factual data. There has been no new research on dog socialization, the work has been so thoroughly done that further work would only be whistling in the wind.

So where did all this magical seven weeks old, forty nine days and not a minute later idea that permeates so much of puppy peddling come from? The first mention of it that I remember in popular literature burst onto the hunting dog scene in 1961. The last sentence in Chapter 3 of a book by Richard Wolters said..."get and start your dog at the right time - seven weeks - that's 49 days old." And in another place in the same chapter in italics for emphasis yet..."buy your puppy and take him home at the exact age of 49 days." Oddly enough the book was called "Gun Dog " and also featured the wing-on-a-string-thing. It's a toss up whether overdoing the wing or the 49 days has had the most negative impact on hunting dogs.

But Wolters didn't just dream up the magical seven weeks. Possibly what twiggged his imagination and induced his cosmic leap to "exact age of 49 days" was a paper by Pfaffenberger and Scott that appeared in 1959 in the Journal of Genetic Psychology entitled, "The relationship between delayed socialization and trainability in guide dogs." This paper suggested that guide dogs had the correct amount of attachment to people to become guide dogs if the average age at separation from litter mates was not less than seven weeks. Or, maybe it was a paper by Freedman, King and Elliot, 1961, in Science entitled, "Critical periods in the social development of dogs." Or it could have been any of a long list of papers by Scott and his coworkers beginning about 1944 and culminating in the book published in 1965 by John Paul Scott and John Fuller, Genetics and the Social Behavior of the Dog. This book, later published under a slightly different title, brought together more than twenty years of study of dog socialization processes done at the Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Maine. The study was massive, utilizing hundreds of dogs— Wirehaired Fox Terriers, Cocker Spaniels, African Basenjis, Shetland Sheepdogs and Beagles. Scott was a leading animal behaviorist, one of only a handful in North America at the time, Fuller was a geneticist, more interested in the genetic potential for the occurrence of a behavior than in its development. Additionally there were many students working toward advanced degrees, post-doctoral students and student volunteers, all interested in animal behavior; most specifically in domestic dogs. This was an early think tank directed at studying dog behavior. Wolters refers to the work of Scott and Fuller in his book, so he evidently got the 49 day idea from their work somehow. But nowhere in all their published work do they say to get a puppy at the "exact age of 49 days". Wolters apparently added 2 and 2 and came up with 49. So what did they really find?

One finding extremely important to the mystical (mythical?) 49 days time frame was that pups in a single litter can vary in developmental age by a week in each direction though all are born within a few hours. This developmental variation arises from several sources- conception can vary two to three days due to super fetation, delay in implantation of fertilized ova in the uterus may be another two to three days, location in the uterine horn, blood supply to the various embryos, developmental arrests or speedups, differential delay in parturition all can contribute to developmental variability. There is also differential post partum development especially during the first few weeks. This means that by the time the pup reaches 49 days since birth, it can be anywhere between 42 and 56 days old developmentally relative to all other pups in the total population of pups whelped on the same day, even to pups in the same litter. And it is the neural, physiological and physical development, not the exact chronological age, not minutes elapsed since popping into the cold, cruel world that is important in the behavioral stability or lack of it in pups and later when the pups reach adult status.

I put this finding first because I consider it the most important for putting the 49 days thing into perspective.

Seven weeks is only a chronological age, only the number of days since parturition. Developmentally, it is an average of a large sample size with statistical limits of plus or minus a week. It says that predictably, 95 per cent of any population of domestic dogs at seven weeks after parturition will be between six and eight weeks old developmentally. Look at any litter closely and objectively each week for behavioral differences and you will see surprising variability. You will see some pups that are precocial, some delayed. What one pup does at a given age, others will only do next week or some did three days ago.

Another major finding of the Scott and Fuller studies was the delimitation of hypothetical periods in social development alluded to earlier, with specific time markers using behavioral and physical development characteristics for the beginning and end of each period. Days of age are averages with plus and minus limits used to make the periods somewhat translatable to real time. For example, one marker signifying the beginning of the socialization period is ear movement in response to sound. Average age for this time marker is 19.5 days with 95% of the pups showing this characteristic between 14.9 and 24.1 days. Another marker is first teeth eruption at 20.8 days with 95% limits from 15.0 to 26.6 days. So according to these time markers the average age for the start of the socialization period is about 21 days but can vary from 15 to 27 days in terms of developmental criteria.

Scott and coworkers delimited four critical periods of social development. I. Neonatal, birth to two weeks; II. Transition, two to three weeks; III. Socialization, from three to 12 weeks; IV. Juvenile, 12 to 32 weeks. Beyond 32 weeks dogs were considered sexually mature. We might add to the front end the prenatal period which the research group did not consider, but which includes from implantation to parturition. Also, we could add a period on the tail end which would include the time from one to two years and call it a period of emotional maturation similar to a post teenage child.

During the prenatal period the developing embryonic pup is influenced by visceral stimuli and hormones from the dam. Drugs, X-ray, chemicals, diseases, parasites, nutrition, all happening to the mother to be can be dangerous to the pups, especially in the first trimester. Severe stress to the pups in the final trimester from temperature, nutrition and other physiological and physical conditions impinging on the bitch can result in later pup problems such as increased emotional state, extremes in behavior and reduced learning ability.

The neonatal period is characterized by nursing and sleeping, at this time pups develop an olfactory imprint of the mother, her breasts, the nest, and each other. The senses of smell and touch (olfactory and tactile senses) are better developed during this period and are the only ones useable by the pups to get information from the outside world. Humans handling pups at this time provides a mild stress which acts to improve pups physically and emotionally. Pups handled during the first two weeks grow faster, mature faster, are more resistant to diseases. They are more stable, handle emotional stress better, are more exploratory and learn faster than pups not handled during this period.

The transition period from two to three weeks old is when pups gain the use of the remaining modalities of sight, hearing and proprioception. Eyes open at around three weeks, hearing begins about ten days later at about the same time as walking and this coincides with one-spot defecation outside the nest. The onset of social interactions with mother and siblings begins at the end of the transitional period. The pup goes from the little fat blob that grunts to an animated live little guy in these two weeks. Pups have no fear at this time so any large objects like a person hovering over them or a loud noise as in any typical home, machinery, appliances, dropped pans, stumbled over buckets, voices, all perceived for the first time do not evoke fear responses. Rather they are associated with low anxiety and get little notice except a mild startle response and a glance in the noise direction. Fear is still three or more weeks in coming.

The socialization period begins at three weeks and extends to week 14. During this period pups learn to be dogs. Through play fight, play sex, play hunting, catching and guarding prey, they develop skills needed later in life. They learn the "language" of dominance and submission such as soft bite, head turn, threat intensity. They also learn to associate with and bond with people. Generally most students of dog behavior consider

socialization of dogs with dogs coming first, from three to six weeks, and dogs with people following, from six to 14 weeks. In reality the two types of socialization overlap just about totally. Dog on dog or primary socialization begin during late gestation stages and continue through juvenile into sub-adult stage. People socialization, or what I have called secondary socialization in another Gun Dog article, starts with the basic associations formed from handling shortly after birth until six or seven weeks, before the fear response escalates. Unless socialization on dogs and people is well underway by then, it has only a small chance of happening at all.

The last half of the socialization period is marked by the development of fear responses starting in the fifth week, then escalating rapidly through the seventh week to a peak at nine weeks, then levels off in the tenth week where it remains for the dog's life. In general anything associated with fear during weeks seven through nine in the non-socialized dog remains a fearful stimulus for life unless changed by systematic desensitizing. Fearful of aversive stimuli occurring for the first time during this period such as harsh punishment, isolation, or any strong fear inducing stimulus, can result in extremes in behavior, abnormal fearfulness, difficulty in training or anti-social behavior as an adult. This part of this period is much like the seven to eight month old child who begins to cry when approached by a stranger though would have giggled at every stranger just a month earlier.

The juvenile phase is from three to eight months of age and is a sort of post graduate period when what occurred in the socialization period must be reinforced or corrected if there is a problem brought on by something improperly done in preceding periods.

Beyond eight months the dog is considered adult and doing adult behaviors such as leg lifting in territorial marking, gradual increase in dominance and general aggression in males; first estrus period in females, behavior patterns related to reproduction in general. This is the period when the dog will attempt to take over if genetically a dominant dog, or be super submissive if genetically shy or submissive. From the start of this period to eighteen months to two years the dog is comparable to a teenager and facing about the same types of identity crises. But again, these ages are averages of large sample sizes with standard deviations. I want to emphasize they are not to be taken literally; they are not carved in stone.

The period of most interest to a prospective puppy buyer is III, the socialization period. This was also the period concentrated on most by the Bar Harbor group. Their findings demonstrated that socialization with dogs, mother and litter mates, begins at three weeks, peaks at seven weeks but continues for up to several months longer. The events that mark the beginning of this period are eyes open and definite startle responses to sudden sounds. Adult heart rate and brain wave patterns coincide with peak dog-on-dog socialization at seven weeks. The period of human acceptance begins at five weeks with the improvement in pup mobility and peaks at eight and nine weeks, but will continue on for another five to six weeks. The criteria used to determine the limits of human acceptance were: lowest fear and highest approach scores at five weeks implied the start, and high fear with low approach that became no approach at fourteen weeks was considered to be the end. They suggested the dog-on-people socialization could start before five weeks but prior to then the low mobility hinders approach responses. So attraction to and acceptance of people actually occurs at least two to three weeks earlier.

The startle response to sound apparent at three weeks accelerates and appears as the earliest indication of a fear response at five weeks. To establish these limits, pups were left with the mother with no human contact until the age of testing. That means the high fear response to humans at fourteen weeks was the age at which pups encountered humans for the first time. Similarly, the low fear, high approach scores at five weeks was the first exposure to humans for this age group.

Exposure to humans in various amounts in other groups of pups showed that even as little as two 20-minute periods a week from four weeks onward was adequate for developing social attachments to people. So why "exactly 49 days"? There is no mention of 49th day being anything special by any of the collaborators in all 4 of 7

this dog behavior research. Where could the magic of seven weeks come from?

One indication that seven weeks might be a reasonable average for socialization processes to occur, but not necessarily the only or even the optimum age was summarized in a graphic plot of the approach/avoidance scores on age in weeks presented in the paper on critical periods in social development of dogs by Freedman, King and Elliot, three members of the research group. The graph shows the approach scores were low at two and three weeks, jumped dramatically at five weeks, then gradually declined to almost no approach at fourteen weeks. Avoidance scores, equated to the development of a fear response, were none at three to five weeks, then jumped abruptly at seven weeks to a maximum by ten weeks. The lines representing decreasing approach and increasing avoidance cross in the seventh week. From this the authors concluded the period for most rapid socialization was optimum at six to eight weeks. However, pups in this study had no exposure to people until the day of testing and each week's cohort of dogs was tested only once. It measured only the accumulative effect of deprivation of human contact such as would occur in wild canids like wolf, coyote, wild dogs of any sort. But somehow Wolters honed this six to eight weeks old to exactly 49 days and hopefully not a minute later.

Based on the results of Freedman, King and Elliot with pups whose initial exposure to humans was when they were tested, Scott suggested two rules for producing well balanced, well adjusted dogs. The first of these is that the ideal time to produce a close social relationship between puppy and master occurs between six and eight weeks of age. This is the optimal time to remove it from litter and make it into a house pet. Done earlier the pup hasn't enough opportunity to form social relationships with other dogs, but would be very attached to people. At the other extreme, if exposure to people is delayed to twelve or more weeks of age the pup will have good relationship with dogs but will be timid and have no confidence with people. A strong relationship with people is important for pet dogs and for working dogs such as guide dogs, and for some hunting dogs where they work under close direction. This might apply to say field trial retrievers. For those dogs that do not require such a strong dog-human relationship, such as the hounds and field trial pointing breeds, exposure at the six to eight week period is not so essential.

The second general rule is that puppies should be exposed, at least in a preliminary way, to the circumstances in which they will live as an adult, and this should be done before three or four months old. The young puppy at eight to twelve weeks is highly malleable and adaptable and this is the time to lay the foundation for its future life work.

If puppies have very little or no human contact, seven weeks is conservative— six weeks would be a better age to get the pup. Waiting to twelve weeks would produce the so called kennel shy dog. The only case I can imagine with no people exposure today is a multi-breed puppy mill run on a shoestring. Anyone who buys a hunting dog pup from such a breeder is not popping on all cylinders.

But assuming all is normal, the breeder is knowledgeable enough about his breed and cares enough to talk to, pet, handle, expose to noises, to strange situations, strange textures underfoot, and allows the pups to interact fully with mother and siblings, then Scott's rule one doesn't apply. The pups will have contact with humans, probably on a daily basis from birth onward., so seven weeks (6 to 8) will not necessarily be the best time for puppy to be taken from litter mates. Like everything else in life, the period from six to eight weeks has some down sides.

One down side is the rapid increase in fear responses, things like avoidance of strangers and fearfulness of new or strange situations. Barely noticeable at five weeks, fear escalates most in the seventh week. Abrupt separation from mom and litter mates, the only rock solid security the pup knows, is the most traumatic experience of its life so far. Transplanting at seven weeks to a totally new environment is magnified because the developing fear is rapidly escalating. Keeping the pup in the same situation it has previously associated with low fear during the three to six week old period— same location, same mom, same litter mates and same breeder with same enriched environment routine— will smooth out the rough road that begins with the rapid

development of the fear reflex late in week six and through week seven before it levels off in the tenth week

Another downside that is related, temporally at least, to the rapid increase in fear is weaning. Among the time marker events included in the Scott and Fuller study is the normal beginning of weaning at seven weeks. Weaning is right up there with total separation from everything familiar for being super traumatic to a pup.

Another downside less well documented but alluded to in some of the work of the Bar Harbor group is that the socialization process of dogs on dogs is not yet completed at seven weeks. Establishment of these social connections and honing them will go on for some weeks and even months in the case of some behaviors. Sure, a dog can survive without it, millions do, but it will be more complete socially if it could have another three weeks with mom and all the kids at home. Adult sexual behavior of both males and females is affected as is social ordering in sexual encounters where males must be dominant and females must not be. The cooperative or competitive individual personality of a puppy develops during the ninth and tenth week so selection of the type of pup you want is a lot less iffy at ten than at seven weeks. There are other behavioral modifications as a result of leaving the litter early but well tested documentation is scarce.

An almost totally undocumented but long time rule of thumb in parts of Europe is that at ten weeks the pup is a scale model of what it will be as an adult. Anyone ever watching pups grow knows that one day the feet are too large for the ears, the next day the ears are outsized in relation to leg length. But at ten weeks, for a few days, all parts are in the approximate proportions they will be when the pup is all grown up. There is no other time in the growth curve when you have such a preview of coming attractions, of just how the pup will look as an adult. I know of no hard evidence or research documenting this phenomenon, only anecdotal information. It would require a systematic set of measurements done at ten weeks and again at a year and at two, as a minimum, on a whole series of individual dogs representing many different breeds and balanced for gender, that's hundreds of dogs. I've looked at only a few and the phenomenon held for those but it could have been chance, or applied only to the breeds, or primarily in males or other confounding variables.

So when should you go knock on the breeder's door and with a huge grin say, "I'm here for my puppy." First, the answer depends on the breeder and on how he/she treats the bitch and the pups. If it's the puppy factory alluded to earlier, where pups get little or no human contact from birth until you arrived to pick out your pup, seven weeks is already too late. If you must deal with such a breeder, and I can think of no reason why you would, six weeks is the oldest if you hope to save the pup. With the rapid onset of the fear response at seven weeks, every day after six weeks old increases the probability of the pup suffering because there is a lack of human contact. The dog, depending on inherited temperament and breed, will be impossible or at best extremely difficult to train, may be a fear biter, surely will be people shy, and will act like a wild canid generally if left in litter with no human contact for its first twelve weeks.

But if the breeder is reputable and knows a modicum of dog behavior and has the whelping and growing pen in the middle of where everyone passes (who can resist getting their hands into a group of chubby little pups clamoring for attention) seven weeks is too young to leave home. Older is better. The optimum time to leave the litter would be ten weeks when the pup is most adaptable. Picking a pup is a crap shoot at best, but you can get a better glimpse of your pup-in-a-poke at ten weeks because that is when what you see is what you get in both the physical and psychological attributes.

Will breeders agree if you insist on ten weeks? Some will, some already insist on it even though they might lose sales, and others will want to sell pups as early as possible. The cost to a breeder in food, care, wear and tear on facilities not to mention nerves, rises exponentially as pups age. The profit that might accrue by seven weeks dwindles rapidly to in that intervening three weeks from seven to ten.

However, the breeders who would agree will be more confident in any guarantees they give and will have more satisfied customers. The dogs they send out will be much better prepared for life ahead. They won't cry throughout their first night away from litter mates and mom. No hot water bottles or ticking clocks for these

fearless little guys. They will have the social, physical and psychological equipment needed to take the upheaval, the move, the new people in their life, and to take on whatever life and the world have to offer. We should all be so lucky.

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