

Welcome to special webinar brought to you by the AKC Canine Health Foundation. Our presenter is Doctor Gayle Watkins. Gayle has been breeding Golden Retrievers and competing in a wide array of dog events: conformation, agility, obedience, tracking, hunt tests, and field trials for nearly 30 years. During these decades she has produced, owned, and/or shown over 50 American and Canadian conformation, obedience, agility, tracking, and rally champions, as well as Master Hunter and qualified all-age field trial goldens. Gayle's focus is on using science in her puppy rearing to produce healthy, stable, talented dogs. She brings her background as an army officer, scientist, researcher, business owner, and consultant to this goal. Most recently, she and two of her co-breeders started Avidog International to share these methods with other breeders and puppy owners. In this webinar, we are going to hear about one of the programs that they have been using in their breeding program for nearly a decade.

Gayle Watkins: Thanks so much for this opportunity to talk about one of my favorite topics of all time: baby puppies. Today I want to tell you a little bit about the results of our 9-year experiment into introducing scents to neonate puppies in hopes of producing adult dogs with exceptional scenting ability. But before we get started, let's go back to the very beginning. What exactly is a neonate puppy? They're puppies from birth to two weeks, and if you've ever seen pups this age you know they appear to be totally helpless. When scanned, their brains show minimal function. Their eyes and ears are sealed shut. They can only communicate through the most basic squeals and mews. They have little control over their body temperature, and they even need help to pee and poop. These baby puppies can only feel, taste, and smell.

Despite their outer appearances, a lot is happening inside those little heads. Neonate puppies' brains are undergoing massive changes as they go from the limited newborn to this active puppy in less than 3 weeks. For example, its brain is quadrupling in size and it's also becoming more complex by differentiating into key components and undergoing significant chemical and structural changes. So, there is much more happening inside this neonate puppy than meets the eyes.

Over the years, some people have wondered if we could take advantage of this

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period of brain development to improve our dogs. In fact, many breeders are already using this period to develop their puppies using the pup's sense of touch through early neurologic stimulation, or BioSensor. ENS was part of the US Military's Super Dog program and was introduced to dog breeders in 1995 by Dr. Carmen Battaglia. ENS is thought to strengthen the dog's physiology by improving its cardiovascular performance and strengthening its adrenal glands. It also provides the dogs with greater resistance to disease and improves stress tolerance and resilience.

Like many other breeders, we've used ENS for decades, but we were curious if we could do even more with neonates. Since most of our puppies go on to do scent work as adults, 9 years ago I asked myself, "can I use the neonatal period to improve my adult dog's scenting ability?" I was specifically trying to increase my dog's interest in scenting, ability to detect scents, and ability to follow scents. I developed what we call Early Scent Introduction, or ESI. ESI is done from days 3 through 16, right along with BioSensor. It is done once daily for about 5 seconds a day, for a total commitment of 1 minute per puppy.

On each of these days, we present each pup with a new scent, one that it's never smelled before that we have near at hand. We head outside to get natural items such as grass, dirt, leaves, bark, moss, flowers and more. We haven't tried snow yet, but with two upcoming winter litters we may have the chance to do that soon. We then hit the kitchen to find other items such as pungent fruits, herbs, and spices including orange, banana, lemon, apple, lime, rosemary and mint, cloves, cinnamon and even anise. We dig through our training gear to find working items, which for us include game bird such as duck, pheasant, grouse and pigeon, and the other tools we use such as tennis balls – they are golden retrievers – and wood and leather. Finally, if we have them available, we offer the pups miscellaneous items such as other tolerant pets like cats and rabbits, and since the advent of nose work sports we now include essential oils.

However, there are some things we just don't use. We never offer meat or other food items to our pups, since we want to focus specifically on scenting, not eating. In addition, we are very cautious about presenting potentially hazardous objects, so we use no chemicals and very few unnatural or manufactured items – aside from the aforementioned tennis balls, of course.

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Then, one pup at a time we hold these scents just in front of – but not touching – its nose, allowing it to sniff them for 5 seconds. We are looking for one of three common reactions. Some items they love, some items they hate, and some they just don't care about.

How do we tell if a puppy likes the smell of an item? When they like it, the pup will often try to bury its nose in the object, snuffling, staying engaged, and despite their inability to move well they'll even try to move towards it. If they hate it, pups will turn their head away and keep it there, sometimes blowing hard out their noses as if to clear it, and even screeching. Of course, there are many scents that they just don't care about. We call this a neutral response and typically the pups do little or nothing aside from sniff when presented with the scent. I'll be honest, sometimes we can't even tell if they're awake.

To give you an idea of what this looks like, here are some of our home movies of our puppies during Early Scent Introduction. We are going to begin by seeing a neutral response of a 15-day old pup to eucalyptus. Watch how little this pup moves toward or away from the branch when it is presented. But if you look really closely, you'll see her nostrils flaring. She's sniffing, just not reacting. Then we'll see a negative response to a banana; see if you can see the pup trying to avoid the smell. And finally, we'll watch a 6-day old pup that is totally engaged with a partridge. See if you can see the signs that he is trying to stay engaged with this scent.

So, you can see the pup sniffing, but very little movement towards or away from.

Now you'll see a strong aversive reaction.

This puppy is very engrossed: sniffing, moving, trying to get closer. In the end, this puppy engaged with this partridge for over 16 seconds, which is a very long time for a neonate puppy.

Hopefully you can see the very different reactions the pups had to the scents.

That's all there is to ESI. For seven years, we included it in our puppy rearing without much thought, but in 2012 I started noticing that more and more of our dogs were having success in events requiring scenting and many were doing so younger and younger. I decided to see if ESI was really improving our dog's scenting ability, but to

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do this I had to figure out how to go about measuring an adult dog's scenting ability and then using that measure compared to two groups of dogs – those that had Early Scent Introduction, and those that did not.

Since many of my adult dogs compete in formal activities that test a dog's scenting ability, I began with those that were available to sporting golden retrievers in the US. Those were the events sponsored by the American Kennel Club, the United Kennel Club, and the Golden Retriever Club of America. These sports included tracking, retriever field trials and hunt tests, and obedience, and then I added work such as search and rescue and hunting. Specifically, I included the three levels of tracking titles awarded by the AKC, four types of field or hunting sports, including the Golden Retriever Club of America's Working Certificate program, the AKC's entire Retriever Hunt Test program, a part of UKC's Hunt Test program, and the lower level field trials that my dogs participate in in the AKC, Derby, and qualifying stakes.

I also included achievements in both AKC and UKC Utility dog classes, which are the only obedience classes that requires scent work. I included two types of retriever hunting: waterfowl, where the dogs retrieve fallen ducks and geese, and upland in which the dogs find, flush and retrieve land birds such as pheasant and quail. Finally, I included search and rescue activities, particularly those involving certification so that we could measure accomplishment.

So, to compare scenting difficulty across these various activities, I surveyed 22 experts who have participated in more than one of these sports or activities. I had these experts evaluate each type and level of scenting activity along with eight characteristics that we classified into three categories: basic scenting characteristics, the amount of effort required by the dog in each event, and finally the challenges that the events presented to the dogs.

The experts evaluated the basics of each activity, considering how easy it is for the dog to find the right scent. For example, in the easiest activities, the scent location is overtly marked with a flag or other object, while in the most difficult events there is no indication of where the scent begins, for example in hunting or search and rescue.

Then they evaluated how fresh the scent was in each activity. In some, like obedience, tracking, and hunting, the scent is less than an hour old, while in the

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more difficult activities the scent can be many hours and even more than 24 hours old in search and rescue work.

Finally, the experts considered the dog's familiarity with the scent. In the easiest sport, the dog works with one of its most familiar scents: that of its owner. Only slightly more difficult sports are those where the dog works with a few known scents, such as in hunting, where the dog knows it is looking for a limited number of bird species. The most difficult scent work, according to the experts, is where the dog is scenting one or more strangers.

Then the experts evaluated the effort required by the dog in each event. How long did the dog need to scent in a single session? This ranged from less than 20 minutes in obedience to over 6 hours in the most difficult events. Then, does it have to repeat this effort only once or twice such as in a tracking test or obedience? Or many times, such as in a retriever field trial or hunt test?

The last set of characteristics the experts evaluated were special challenges that made scenting more difficult for the dog. In some events, scent contamination is intentionally limited, while in others there is no control over the amount of contamination that might occur, making it much more difficult for the dog. The tracking surface, terrain, weather, all influence a dog's ability to track. Events that are indoors or on lawns are much easier than those that take place in all kinds of weather and on surfaces ranging from asphalt and cement to lakes and rivers. Finally, the experts concluded that events in which the dog works on lead are significantly easier than those where the dog is working away from and independent of its handler.

So, using these experts scores on each characteristic, we arrayed all of the events across a scenting complexity scale, putting each event into 1 of 5 categories, from the simplest such as upland hunting the Utility dog classes to the most complex, which are variable surface tracking, master hunter, field trials, and search and rescue.

I then looked at two cohorts of dogs from my kennel. The first group are all the dogs we produced between 1985 and 2003. Those 72 goldens: 39 males and 33 females did not receive Early Scent Introduction but all before received Early Neurologic Stimulation. The second group consists of all the dogs born in our kennel between

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2004 and 2009. These 78 goldens underwent both ESI and ENS during their first two weeks. I then compared how these two cohorts have done on the five categories of scenting activities, from the simplest to the most complex. To make this comparison we simply added up the scores of each dog's scenting accomplishments, with 1 for the simple ones to 5 for the most complex. If they had no scenting accomplishments, they got a 0. We also tried to note the age at which a dog received a title or certification, if it was available.

So, what did we find out? Compared to the non-ESI cohorts, pup that had Early Scent Introduction had more scent accomplishments and more of those accomplishments are in the higher complexity events, and they're achieving these much younger. Let's look at a few details. In this chart, the dogs that did not get Early Scent Introduction are in the blue columns and those that did get ESI are in the red columns. The bars represent the percent of scenting accomplishment that each cohort achieved in each category, from the simplest on the left to the most complex on the right. The percentages totaled to more than 100 because many of these dogs succeeded in more than one scenting activity.

You can see that the ESI cohort had significantly more accomplishments in scenting activities. Most of these accomplishments have come in the more complex events. In fact, more than twice as many ESI dogs than non-ESI have at least one intermediate accomplishment, 1/3 more have complex accomplishments and more than twice as many have the most complex accomplishments. It's important to note that most of the ESI dogs are still training and competing, so I expect these differences may grow even more.

And, the ESI group is achieving more, sooner. This chart shows the average age that the titles or certifications were earned in some of the categories. Again, the blue bars are the dogs that did not receive Early Scent Introduction and the red bars are those that did. The yellow diamonds are the breed average for achieving some of these titles. For example, our average non-ESI dog earned its Utility Dog title at a little over 6 years of age. The breed average for golden retrievers is just over 5 years of age, but our ESI cohort completed the Utility Dog title at a little over 3 years of age. This achievement holds across other events that I have ages for, including the complex and most complex field events, and the most complex tracking activities. In fact, the ESI cohort is accomplishing these titles from 2½ to 5 years younger than the non-ESI compatriots.

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Although obviously there are some limitations to this study, since it's only from a single kennel, my conclusion is that introducing scents to neonate puppies can indeed improve scenting ability in the adult dog, enabling them to succeed at more complex scent work and to do so earlier.

So, why not try ESI with your puppies, or encourage your breeder to do so? It's easy to do, it only takes a minute per puppy total over 16 days. It's simple; it only requires 13 objects, many of which you probably have around the house or kennel. And not only can't it hurt; it may very well change your puppy's brain for the better.

There are five easy steps to doing this. First you find 13 objects with unique scents. Gently hold one puppy at a time, put that item near that puppy's nose for five seconds. If you want to, it's optional, but you can note its reaction. Then return the puppy to its whelping box. That's all there is to it.

If you want to try it, we've uploaded our step by step guide at [www.Avidog.com/ESI](http://www.Avidog.com/ESI) and we'd love to hear how it goes from you, so drop us an email at [info@Avidog.com](mailto:info@Avidog.com). Thanks so much!

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