

2023 Edition



FERNHILL

YOUR SCOTTISH DEERHOUND PRIMER

*A handbook to assist prospective
and novice Deerhound owners*

*...Like all
sporting breeds
the Deerhound
was originally
evolved for a
specific purpose:
to chase
the wild deer
that were found
in the hills
and glens
of the Highlands...*

F o r e w o r d



mong those who know the breed,

the Scottish Deerhound is recognised as the best kept secret in the dog world. But it is not a breed for everyone. Few breeds are more demanding as youngsters in terms of time, space and finances. This handbook was written to better assist prospective Deerhound owners in understanding this breed's specific needs and idiosyncrasies, so that a more informed decision can be made as to whether a Scottish Deerhound is the right choice for you. It is also to serve as a guide for the novice owner to help them avoid the trials and pitfalls that we have all experienced with Deerhound ownership. Most of all, it has been written so that more Deerhounds may live the life they deserve and love. After more than fifty years with this wonderful breed I would not know whom to thank for the information contained in this Primer. It represents the accumulated wisdom of so many... but in particular my Fernhill hounds telling me in their many special ways what works for them.



“A respect for the function of a hound, however distant, is the way to breed a sound animal...”
Col. David Hancock, M.B.E. • Ch. Ayrshire, Whelped 1904. Pictured at 4 years old.

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The Deerhound

By A.N. Hartley (Rotherwood Scottish Deerhounds) Reprinted from Dog World, August 1, 1952

Some breeds have an inborn flair for advertisement. They have grasped the familiar slogan that the dog show is the shop window of the canine world, and they see to it that their display develops the maximum pulling power. With pricked ears, wagging tails and outstretched paws, they inveigle the passing visitor into a chat and often ensnare him for life. But the hardy spirit who tracks the Deerhound to his show bench lair is all too often rewarded by a row of closed eyes and rhythmically heaving flanks. Here and there a head is raised and dark wistful eyes look out from under shaggy brows; perhaps a tail stirs so unemphatically that the effort does not quite release it from an imprisoning leg. Then no further demonstration is forthcoming. It is hard to visualise what a picture of life, grace, and power that same hound will present as he stands on a rocky hillside, head up, neck arched, tail just raised, and quarters bent for a spring, his eyes and ears alert to catch the slightest rustle or stir.

We do know that as early as the 15th century, the hunting dogs of North Britain were already famous.

The breed has its roots in the past, and more than once Deerhounds have left their mark on the pages of history. A 15th century historian tells us of a quarrel between the Scots and the Picts over a greatly valued hound which the Picts stole from the Scots, and he adds that many men perished in the battle that ensued. Mary Queen of Scots loved hunting, and in 1563 the Earl of Athol arranged a tainchell or deer-drive in her honour at which "the Queen ordered one of the best dogs to be let loose on the deer."

Like all sporting breeds the Deerhound was originally evolved for a specific purpose: to chase the wild deer that were found in the hills and glens of the Highlands. A stag is nearly twice the height and more than twice the weight of a deerhound, so it follows that a hound must be brave and fast and strong if it is to be of any use against such a formidable adversary. Moreover, the deer possesses deadly weapons - only let a rash and over-eager young hound venture within reach of his horns and a quick slash will end the hound's hunting forever. So the early sportsmen who fixed the breed's type sought for speed, slaying power, strength, agility, and, above all, for indomitable courage. What foundation stock they had and what crosses they added we cannot now tell, for they left no records, but we do know that as early as the 15th century, the hunting dogs of North Britain were already famous.

The invention of the sporting gun and the consequent division of the deer forests for letting purposes finally ended the older sport of deer coursing with dogs, because these smaller areas did not give enough scope to a hound which could follow his quarry for forty miles. Nevertheless, the points that are sought in the show ring today are those that would fit the dog to do his work on the hills. The Greyhound conformation, the ample heart room, strong loin, sloping quarters, strong dense bone, and well-padded and knuckled feet are the breed essentials, and all make for the needed speed, strength and agility. And owners who, in recent times, have used Deerhounds for hunting assure us that he has not lost the powers that made him once renowned. When the opportunities for their legitimate work dwindled to vanishing point, Deerhounds became very scarce, and in about

1830 the breed was in danger of extinction. It was saved by the efforts of Mr. Archibald McNeill and his brother, Lord Colonsay, who gathered all the best specimens remaining in the Highlands and established the Colonsay strain which was kept by the McNeill family until 1914. The McNeills hunted with their Deerhounds in the old manner on the island of Jura, and their dogs showed grand sport without any help from guns.

But circumstances were against the resumption of deer chasing in the British Isles, except in a few isolated instances, and the Deerhound would soon have perished if he had not been strikingly endowed with the qualities that make a good companion.

His appearance is commanding and beautiful, with the graceful outline and lithe movement of his Greyhound forebears, and he appeals irresistibly to those who like a big dog. Yet he is never clumsy, and can stow himself neatly into the corner of a small room or handily share the back seat of a car.

His height from the ground and his smooth legs enable him to come into the house on a wet day without bringing half the mud of the street in too, and his harsh, dense, grey coat keeps him warm and does not show dirt even in the smokiest town. His clean lips never slobber and he moves with a deftness that preserves the smallest ornaments.

Deerhounds are one of the longest-lived of the big breeds, and they seldom grow fat as they grow old. At eleven or twelve, they often have eyesight, teeth and hearing still perfect and some can even chase hares. But handsome is as handsome does, and it is the Deerhound's lovely character more than any other single factor that has preserved him from extinction. He is gentle, fearless and candid: there is nothing mean about him.

He is pleasant to all human beings because he neither expects harm from them nor intends harm to them. To say that he is safe with children is to say too little. He is safe with all reasonable people, but he adores children and soon becomes their playmate and guardian. He is obedient, not from a rigid sense of discipline, but because he so loves to please.

Mr. George Cupples, the author of *Scottish Deerhounds and Their Masters* (1894), paid this golden tribute to the breed more than 100 years ago. It is equally well deserved today.

“How perfectly docile is the thoroughbred Deerhound of our own Scottish forests and stalking ranges! His master - if not always his keeper can at a word force him from the very throat of the stag he has gripped, has pulled down and has worried like a wolf, so that he comes quietly to heel. His inveterate keenness, no less than his strength, renders him about as bad a foe as mortal creature need wish to face. Yet how gentle and familiar a housemate is he; of all dumb favourites the most decorous by the hearth and table, a marvel of patience with the little dogs; and among the children a plaything that can be handled as they will.”

The Deerhound is a part of our national heritage. He is a living link with the spacious past of big logs smouldering on heaps of flaked ashes, of flames glinting on armour, of flaring torches and heralds and minstrels and all the pageantry that has faded from the world we know. He is ours to cherish, not for the work that he might do, but for the pleasure that his gentle dignity, his pleasant companionship and his loyal love can give us.

Reprinted with kind permission of Ms. A.N. Hartley



The Deerhound

TYPE

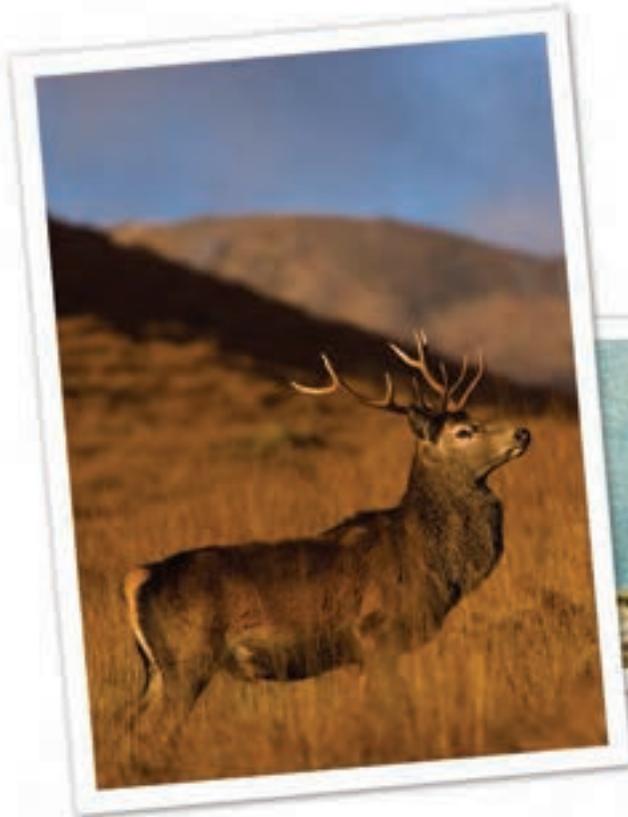
Type is the sum of those qualities which are distinctive to the breed and make the animal not a dog, but a Deerhound. Two elements in particular have formed the Deerhound as a distinct breed:

Its quarry: The Red Deer (*Cervus elaphus*), the largest land mammal in Britain, has a size in the Scottish Highlands somewhere around that of a white-tailed deer. It can be 3 - 4 feet at the shoulder and weigh 250 - 300 pounds;

The terrain: Red deer habitat is rough bog, dense coarse heather, steep rugged rock hills, crags and burns and the Deerhound was expected to pursue and dispatch its quarry within three to four minutes maximum.

The Deerhound is a sprinter. Hunting in pairs, they “coursed” their quarry in a short swift chase on difficult terrain. The successful course ended within minutes with a leap for the jowl, ear or throat. The weight of the dog and the speed of the running target caused the deer, ideally, to fall, breaking its neck and dying instantly. Failing a swift kill, Deerhounds would keep a stag at bay until it could be dispatched. The Deerhound Standard describes the Deerhound “type” as a rough-coated Greyhound of larger size and bone (UK 1892, 1914; AKC 1935).

For more information on the Scottish Deerhound Standard, email bh@fernhill.com or go to the following link for an abbreviated version: <https://showsightmagazine.com/understanding-scottish-deerhound-standard/>



Slipping the Deerhounds at Dava, Scotland • Photo Sarah Helps.



The Titan Breaks Bay • H.H.Crealock 1873



“Evie and her Raven Puppies”

Deerhound Husbandry

The Key Ingredients are Exercise and Food

Every Deerhound breeder does their best to produce a companion that will be a credit to the breed at home, in the ring, and in the field. Usually no expense is spared in order to send out a puppy that has the best possible start in life. However, it is the new owner that grows that puppy out from a 20-30 pound pup to a 100 lb adolescent in the space of some 6-10 months. It cannot be stressed enough that this is a notoriously difficult task in Deerhounds. Because it is fraught with so many pitfalls and so many Deerhounds do not reach their maximum physical potential, the following articles were written for *The Windhound* in the 1980s... they have stood the test of time. Hopefully they are of some help. The key ingredients are exercise and food...not forced exercise, but lots of puppy play. It is extremely difficult to raise a show quality specimen without a litter-mate. It can be done, but during those first critical years, it is almost a full-time job. It is only over the years that I have come to realize how difficult the Deerhound is to grow out in comparison to other breeds. There is, as well, a vast difference in growing out a 29 inch 70 lb female and a 32 inch 100 lb male that attain those dimensions in only 10 months. Try to follow these instructions, give the breeder a call when things get rough, be patient... all Deerhounds go through some horrendous stages... and good luck. When your puppy is three years old, you can open your eyes and look at what you've got. It's clear sailing after that.



Fernhill's Lyric at 7 wks...



...and again at 7 years



Deerhound Husbandry



(First printed in *The Windhound*, July 1983)

DEERHOUND DIET

Exercise and proper nutrition are the key elements in raising a Deerhound into a physical specimen that you can be proud of. Most people have their own tried and true method of feeding, puppies and adults. This is mine. Not that I expect any converts, but it is always interesting to hear how someone else indulges their pets to the edge of bankruptcy! After years of growing out Deerhound puppies, I have acquired a raft of Fundamental Truths.

First, I feel that food and water should be available to your hounds, especially growing puppies, at all times.

NOTE: The #1 cause of death in Deerhounds is heart disease. Recent research indicates a direct link to approximately one-third of these cases being directly related to **DIET** and **EXERCISE**... Appendix A (p.36) compiles this research for you and provides dietary suggestions.

Second, no supplements for growing puppies if you use a commercially prepared dog meal that is chicken based.

Third, vary the diet as much as your budget will allow.

Fourth, protein content should be 22% to 24% maximum for growing puppies and adults.

Feed puppies up to six months three to four times daily. After six months (and this includes adults, feed twice daily. In addition to the meals have a kibble available for self-feeding at all times so they learn food is always available and they don't have to gobble their food. Deerhound puppies don't overeat. On the contrary, the trick in growing them out is to get enough in them to meet their needs and put a little flesh on them. No mean task.

The meals consist of as much as will be eaten in fifteen minutes. They are made up of a commercial balanced 22% dog kibble with chicken based broth/stew to moisten (up to 25% of total by volume, 2 tablespoons of sunflower/safflower/salmon oil and one half a cup of kefir. The broth/stew is made from soup bones, chicken necks, lamb, carrots, celery tops, etc., spiced with garlic. In addition, at least three times a week, preferably daily, I feed raw or semi-frozen chicken necks or backs (bones and all which they scrunch up or gulp whole. I also feed one to two pieces of raw pork liver weekly. This is the only pork they are allowed, a notoriously indigestible meat. Pork liver is much higher in iron than beef liver and also much cheaper. If they enjoy it, a big bowl of kefir with a raw egg yolk beaten up (no raw white) and/or a hardboiled egg, shell included, is also good.

Single Deerhounds tend to be poor eaters and it is a problem getting them to consume enough in that first year if they don't have competition at the feed bowl. Puppies should be fed together or with adults to stimulate their appetites. If you are desperate, borrow a neighbour's dog - even a cat will help. The goop that I put on puppy and adult meals varies considerably. Sometimes it is fried liver or chicken giblets, sometimes a stew of vegetables and meat and table scraps that include all egg shells, stale bread, etc. Now and then I hit on something that they really like, such as lamb. It is very digestible and wonderful for dogs with stomach problems. Be prepared, after you have filled your freezer with a new-found delicacy, to have them go "off" it. They get bored easily. I personally think that the variety is essential right from the beginning to keep the innards active and minimize problems should your dogs get into garbage or you are forced to alter their diet for some reason. My dogs have eaten everything from raw frozen char and salmon, seal fat, whole chickens, groundhog heads (their choice!), lamb and beef, to awful offal and thrived. We have had one bout of pancreatitis from a combination of pork hocks and anchovies, stomach gas from roast goose skin, and unbearable flatulence from raisins and dates. Vets now strongly advise against feeding raisins and dates as they are toxic to some dogs.

You have been warned!

I have never owned a Deerhound that really liked dog biscuits but some do. Except for teething puppies, I do not recommend knuckle and long leg (beef bones). The continual gnawing seems to wear down the enamel of the adult teeth at too fast a rate. I think that puppy or growth chows are too "hot" a feed for puppies and if you are adding vitamins and calcium-phosphorus supplements, you are asking for serious trouble. Remember, many puppies "toe out" in the early stages, particularly when teething.

However, if their feet look flat you likely have "soft" water (lacking Ca and Mg) so add more plain kefir. As the body develops and the chest drops, the front should gradually straighten out. This may take up to a year to two years with the big males. Don't panic! Let me assure you that it will get progressively worse if you load the supplements into the food. It is far better to stimulate the appetite with more running and play and increase the overall nutrition intake of the puppy than to pump it full of concentrated vitamins. My active adults also have a prepared meal morning and evening... basically the same regime as for puppies. Select the dry meal on the basis of the detailed content analysis on the side of the package. Avoid the expandable chows that are high in soya products, the simulated meat products that are loaded with red dye and those feeds with ethoxyquin as a preservative. Meat and bone meal should be near the top of the ingredients listed.

It is important to continue the oil, as most dry feeds are deficient in fatty acids as concentrates of unsaturated fats lead to rancidity and the destruction of other nutrients such as vitamin E. Deficiencies in omega 3 fatty acids (linoleic, EPA, DHA) causes dry scaly skin and lesions).

A Deerhound puppy will never overeat. Feed it as much as you can coax it to consume and it will grow out better.

Deerhounds in particular need additions of dietary fats with a high Omega 3 and a low Omega 6 ratio. Of the animal and vegetable fats to use: oily fish (wild raw salmon, mackerel, herring); plant seed oils (camelina, flaxseed) are all the right ration of Omega 3: Omega 6. Ensure that your dry food is fresh (check the best before date and count back 12 months) and add sufficient fats to ensure a glossy coat and less shedding. See Appendix A. The milk products can be dropped for adults. Many dogs cannot tolerate the lactose, so use kefir, but as the bones have finished their major spurt, it is not really necessary.



Deerhound Husbandry

ADDENDUM

The death of two puppies of mine at six months from aflatoxins originating from mold on feed at a time when another Deerhound breeder had a similar experience, as well as occasional bouts of unexplained diarrhoea while using feed that I know is more than three months old have made me extremely concerned about the freshness of commercial feeds. While there is little that can be done when the grains used by the company contain mycotoxins, (and random laboratory analysis that I have had carried out on a premium feed indicates that this can happen) the risk to your dog can be reduced by never purchasing any feed for which you are unable to establish the date of manufacture. Mycotoxins (aflatoxin, vomitoxin, etc.) are implicated in compromising immune systems, toxic hepatitis, liver tumours and other ailments. Based on the presence of more visible symptoms, the cause of illness or death may be attributed to other factors. However, these may well be exacerbated by long term low levels of mycotoxins in the feed that forms the bulk of your dog's diet. The best you can do to protect your pet is to purchase food that is not older than three months since the date of manufacture. Store all food in a cool dry location - not in a closed plastic container in a warm kitchen. Alternatively feed a raw diet, grain-free kibble... certainly corn free kibble. Companies that use "Best Before" usually assume their product has a shelf life of over a year. Would you eat a meal that has been sitting around on a shelf for a year?

BH 1999



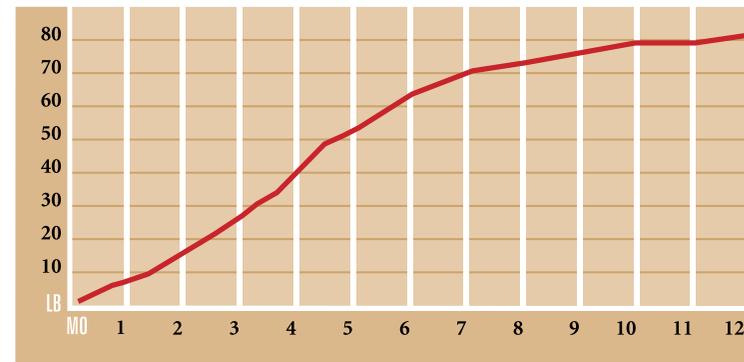
FEEDING UP TO SIX MONTHS

- 1 Leave a bowl of dry meal (\pm 22% protein, usually marketed as “maintenance” or “adult”) out for your puppy to nibble when it feels hungry;
- 2 For the prepared meal (3 to 4 times daily): use a suitable quantity of dry meal (as much as will be eaten in 15 minutes) with a touch of boiling water over it to soften slightly and bring out the flavour. Don’t turn the meal into mush; pour a cup of evaporated milk (dilute, using two cans of evaporated milk to one quart of whole milk and two egg yolks, but no whites) and a doggy stew made from soup bones, chicken necks, carrots, apples, greens, etc. over the above. The stew is preferred chilled in summer and warmed in the winter. Also mixed with the above, add $\frac{1}{2}$ cup of kefir if your pup is lactose intolerant (ie. squirts) and 1 tablespoon of safflower oil.
- 3 A big bowl of whole milk with an egg yolk (no white) beaten up in it once a day is appreciated unless your puppy exhibits an intolerance for lactose, then try a livestock lactose-free milk replacer or kefir.
- 4 Raw chicken necks or backs (bones and all... but not the long leg and wing bones (other than the tips) daily (4-10 necks) is good and also a chunk of raw liver weekly.
- 5 Fresh clean water at all times.

DO NOT supplement your puppy with vitamins. Big lumpy joints are normal for a large breed puppy that is growing rapidly. So is toeing out (but not flat feet) during the teething stage.

A Deerhound puppy will never overeat. Feed it as much as you can coax it to consume and it will grow out better. Picky eaters are likely not getting enough exercise.

Table 1: The First Year Growth Spurt of Mary Electra Buchanan



OVER SIX MONTHS TO ADULTHOOD (Morning and evening feeding Continue the dry meal at 22% protein content (usually called “adult” or “maintenance” and stew as above, increasing the quantity. Do not use soya based feeds as they have been thought to cause bloat. : Of the oils, wild salmon oil, flaxseed or camelina are highest in Omega 3 which is a must for their skin and coat and overall health. Avoid suddenly adding rich, fatty foods... that may trigger pancreatitis which is relatively common in Deerhounds. Supplements of milk and kefir can be discontinued when your pup is 1½ to 2 years unless they become lactose intolerant at a younger age.

YES! 22%-25% protein, raw chicken and duck necks, raw ground turkey, raw wild salmon.

NO! 28%-32% protein, preservatives (ethoxyquin), soya, corn, colour, sugar, vitamins.

Deerhound Husbandry

Table 2: The Ratio of Calcium to Phosphorus in a Variety of Foods

Food	Ca to P
Brewer's Dried Casein	1 : 11.0
Corn Meal	1 : 9.7
Cracked Barley	1 : 8.6
Wheat Red Dog	1 : 6.5
Round Steakk	1 : 16.9
Dried Rice	1 : 3.9
Beef Liver	1 : 44.0
Beef Heart	1 : 39.0
Cottage Cheese	1 : 1.6
Chuck Roast	1 : 12.0

Some Foods that are Exceptions to the Above are:

Food	Ca to P
Milk, non-fat, dry	1.3 : 1
Butter	1.3 : 1
Green Bone	1.9 : 1
Bone Meal, steamed	2.1 : 1
Chicken, whole	1.4 : 1

CALCIUM AND PHOSPHOROUS

These are the primary minerals for building bones. Before either of these two minerals can perform properly, they must be fed in a proper ratio to one another. One without the other, or one improperly balanced with the other will not be adequate. The correct calcium-phosphorus ratio is 1.2 - 1.4 parts calcium to 1 part phosphorus. Or, more roughly stated: 6 parts calcium to 5 parts phosphorus.

Even when calcium is fed to a dog in the correct quantity, a calcium deficiency can exist. This happens when too great a level of phosphorus has been fed through an improper ratio, usually when supplementing an already correctly balanced dry food with vitamin-mineral powders and meat. A severe calcium deficiency results when the phosphorus level is so high that it binds most or all of the calcium present and makes it unavailable to the dog. The calcium deficiency could cause splaying of the toes, falling pasterns, de-mineralization of the bones in the young, spontaneous fractures and bone disease or osteomalacia in the adult dog depending on the degree of deficiency of the mineral. It is also possible to create a severe phosphorus deficiency by the high level feeding of calcium causing deficiency signs as those above. A disturbing fact about the deficiency signs of calcium, phosphorus, vitamin D, magnesium, manganese or copper deficiency is that they may be difficult or impossible to differentiate clinically. In foods available to the dog today (in the form of raw materials almost all, with few exceptions, have greater proportions of phosphorus than calcium as shown in Table 2.



Heading out.



Deerhound Husbandry



“Havoc” Non cogito, ergo zoom • Photo by Dan Gauss

DEERHOUNDS AND EXERCISE *(From The Windhound, July 1983)*

I was invited to discuss Deerhounds and exercise... and agreed, because a Deerhound is, above all, a galloping Hound and this tends to get ignored or forgotten today. It is easy to do with the malleable disposition of the Deerhound and the fact that most are raised in an urban environment. Simply put, the true Deerhound is a running machine that cannot develop to its maximum potential, mentally and physically, without a lot of exercise. An apartment or suburban raised Deerhound with a quick jaunt around the block once or twice a day will survive (and fray the nerves of its owner) but will not end up thinking or looking the way a Deerhound should. So many Deerhound fanciers have never seen hounds that hunt regularly and have been raised under “ideal” conditions that the difference is difficult to describe. It boils down to muscle tone, attitude, purposeful drive in the animal’s gait, and a gleam in the eye, as opposed to that sweet lap dog look which is so much a part of a Deerhound too, but I shudder when I see it come to dominate the breed. I will discuss exercising puppies first, and then adults. Now, for a fundamental truth in raising a Deerhound puppy: a pup will not reach its maximum potential unless it is grown out with another dog, preferably a litter-mate. The difficulty in raising a Deerhound as a single dog is that human and puppy activity cycles are totally different. Most people are occupied during the day and a puppy left alone in the house or yard will

Simply put, the true Deerhound is a running machine that cannot develop to its maximum potential without a lot of exercise.



Deerhound Husbandry

sleep longer, wander about aimlessly, play sporadically and sometimes get into destructive chewing, out of boredom.

Exercise may then come as a concentrated dose during an apostrophe hours walk or play during the evening. The natural process during the first year of growth is for puppies

All Deerhounds go through some horrendous stages... When your puppy is three years old, you can open your eyes and look at what you've got. It's clear sailing after then.

to play hard, verging on violently, for half an hour to an hour, then sleep, then more play, all day long. They seldom let up and it is exhausting for humans just to watch! This kind of continuous but paced activity is what builds muscle, stimulates the appetite

and physically develops the dog. The single Deerhound puppy (and adult), because they are basically relaxed dogs, will not self-exercise sufficiently for optimum development; nor can humans generally provide an adequate substitute, especially at the puppy stage. Not all single Deerhounds raised as urban house pets exhibit what I call the "single sighthound syndrome," but many do. This is the gawky, yearling that has no body, toes out, is down in the pasterns and is hocky behind. It is sad for the breeder that sent out a sound, solid puppy at 8 - 12 weeks. It is hard on the owner that is anxious to get into the show ring. Growing out any animal that goes from a pound to 100 pounds in a year is tricky, to say the least, even in an ideal set up. The requirement in that first year is continuous, unforced play; that leaping, twisting and galloping around that puppies do constantly. Roadwork for a puppy is no replacement for this and can be downright dangerous to a growing puppy if it is mechanised and forced. Restricting a puppy's ability to exercise is just as bad! Would you prevent your child from running about and playing hard until they become a teen? **NEVER CRATE YOUR DEERHOUND PUPPY** and then go off to work!! So, what is that "ideal" set up during that critical growing out period?

It consists of a huge (50' x 100' minimum) fenced yard, two Deerhounds, or some other high energy breed, and two separate beds. Then attach the works to the house so the yard can be supervised visually by a person with a loud voice to calm things down when they get too rough. Socialization in the house goes without saying (after all, that's why we have them). Another critical element, in spite of the large yard, is a long walk daily with the owner, off lead, preferably in a park or field. Now with a young pup, this walk is not that important for conditioning, but it is vital for bonding. A Deerhound likes the hand that feeds it, but it loves the person that takes it for a run. It is this walk that makes the Deerhound your special pet. I personally don't agree with wire dog runs for Deerhounds. If you need runs, you have too many dogs. I experience a guilt trip every time I pass a penned Deerhound and have to look at those wistful eyes begging to be taken for a walk. Dogs in long adjacent runs will exercise themselves into some kind of condition by fence running and fence fighting, but I feel puppies grown out this way may have a tendency to neurotic behaviour, especially if there is insufficient socialization as well.

Adult Deerhounds are notoriously poor at self-exercising. They generally lounge about, waiting for something to happen. I have confronted my dogs with miles of empty tundra and prairie and spent a lot of mental and physical energy figuring out how to unglue them from my side. I ended up resorting to a snow machine and dirt bike. Loose behind a trail bike, a Deerhound can run all day, pacing itself very cleverly between a lope, trot and gallop, and then will quit when tired. In an urban environment, jog to keep your dog in good condition. Start gradually with 1-2 miles a day for the unfit hound, and by the end of a few weeks, you should be up to five to ten miles a day. If you can't do this yourself advertise for a sprinter or marathoner in training to help! (This is, of course, not for puppies and geriatrics.) This will keep your dog in condition. It promotes muscle tone, but it does not build muscle.

The latter develops with the unrestrained gallop, from dogs chasing each other, lure coursing, etc.. Both types of exercise are needed to develop a Deerhound and keep them fit and healthy. If you have facilities for only the former, that at least should be provided. If you cannot even provide that, consider some other type of dog.

The use of a car for conditioning? I have seen it done. It's gross; also, it's dangerous to the dog, to other motorists and to you. It wastes gas and it forces your dog to breathe in exhaust fumes; it's a good way to throttle your dog or have him hit by a car. A definite no to this kind of exercise. Any able-bodied person using this method should trade in their hound for a Pug or Peke. As for walking and jogging, I conclude that no mortal man or woman is capable of over-exercising a healthy adult Deerhound on foot.



Ready for another walk. Fern Hill

MEDICAL RECORD - VACCINATIONS

Puppies: An appropriate vaccination protocol recommended by veterinarians is as follows:

- The standard 3 shot series for puppies is Distemper (MLV) and Parvovirus (MLV) (e.g. Intervet; Progard Puppy) starting at 9 weeks and then again at 12 weeks and 16-20 weeks. Immunity for parainfluenza and bordetella (two important agents that cause kennel cough) are best given by nose drops 3 days before a show or potential exposure.
- Rabies vaccine (killed) should be given after 24 weeks.
- Heartworm medication is necessary if they are prevalent in your area.

Adults: An appropriate vaccination protocol recommended by veterinarians is as follows:

- Booster at 1 year MLV Distemper/Parvovirus only. No further boosters are needed as studies indicate that the duration of immunity is 7.5 to 15 years, probably lifetime. **HOWEVER**, if you show actively, course, or use the public dog parks and generally expose your dog to other dogs regularly, check titers annually or do boosters every three years.
- At 1 year give at least 3-4 weeks apart from the Distemper/Parvo booster, a killed 3 year rabies vaccine. Follow the legal requirements to vaccinate in your state or province.

Vaccines not recommended for dogs: Corona, Lyme and Leptospirosis. See Dr. Jean Dodds at: <https://creekside-kennel.com/wp-content/uploads/2019/12/vaccination-protocol1.pdf>





Am. Can. Ch. Pennant's Ghost (Ch. Fernhill's Turbulent Indigo X Ch. Fernhill's Encore) pictured at 13 years of age • Owned by Nancy and Bill Logan

An ABC of Deerhound Idiosyncracies

A Few Tips Accumulated after Fifty years with Deerhounds

AGE

Old age for a deerhound female is 11-13 years and for a male 9-11 years. Not enough Deerhounds make it to old age. The true average life span in North America is 9.8 years for females and 8.3 for males based on the 2011 Scottish Deerhound Club of America's (SDCA) health survey. In the 1995 survey these numbers were 8.9 and 8.4 respectively. Cars are the most preventable killer of Deerhounds (or should that be rephrased as owner carelessness). Not many Deerhounds ever grasp that anything faster and more lethal than themselves can possibly exist. Heart failure due to dilated cardiomyopathy (DCM) or other causes, and bone cancer (osteosarcoma) are the two most frequent causes of health related death, with torsion-bloat (stomach and splenic) following close behind. All three have a clear familial link, with DCM and osteosarcoma being inherited. This is tragic for owners and breeders. Check on the longevity of the ancestors of the dog you are purchasing. While there is a big element of luck in owning a thirteen year old Deerhound, there is dedication involved as well. Feed a well balanced diet with lots of raw (i.e. chicken necks); don't over inoculate; keep stress levels down. If there is a single secret to longevity in Deerhounds, it is keeping them happy with lots of exercise and love. They are quite capable of worrying themselves to death if their lives are disrupted. See Appendix C: Longevity in Deerhounds.



9 Year Old Male (Back Left) Playing With Youngsters, 2023.



An ABC of Deerhound Idiosyncracies

ANESTHESIA CONSIDERATIONS

Anesthetic and Surgical Considerations for Scottish Deerhounds by Betty Stephenson, DVM; Michael Court, BVSc, PhD, DACVAA; John Dillberger, DVM, PhD, DACVP, DABT, FIATP; and Miranda Levin.

Slow Drug Metabolism can occur in Deerhounds.

- **Genetics:** Thought to be partly heritable, but mechanism is not yet fully understood. Research is ongoing.
- **Presentation:** Affected dogs are slow to wake up and may have episodes of flailing and excitement while recovering from anesthesia.
- **Treatment:** Supportive care that may include warming, padding, intravenous fluids, etc., until the drug wears off.
- **Prevention:** For affected dogs, acepromazine and hydromorphone are safe for sedation and premedication, and propofol and gas anesthetics are safe for induction and maintenance, but trazodone, ketamine, and thiobarbiturates can be unsafe.

Hyperthermia can occur in Deerhounds. To date, cases have been milder than classic Malignant Hyperthermia.

- **Genetics:** Unknown. Research is ongoing.
- **Presentation:** Unexpected rapid increase in body temperature to more than 105°F, panting, and deep-red mucous membranes during anesthesia or recovery.
- **Treatment:** Rapid cooling and administration of fluids and sedatives. Most cases recover with appropriate cooling. Dantrolene is also effective but usually unnecessary.
- **Prevention:** For affected dogs, Ketamine/diazepam, tiletamine/zolazepam (Telazol®), and possibly butorphanol may increase hyperthermia risk. Dexmedetomidine, propofol, alfaxalone, and isoflurane have not been associated with increased risk. Temperature should be monitored throughout anesthesia and recovery. Affected dogs often exhibit excessive pre-anesthetic anxiety, fear, or stress from an office visit. Anxiety (and risk) can be reduced by administration of an anti-anxiety drug (acepromazine or gabapentin) at home or at hospital before anesthesia.

SURGICAL CONSIDERATIONS

Two inherited blood clotting disorders can occur in Deerhounds: Factor VII (**FVII**) Deficiency and Delayed Postoperative Hemorrhage (**DEPOH**). Both disorders require preparatory steps when surgery is planned.

FVII Deficiency

- **Presentation:** Unexpected or excessive bleeding DURING surgery, which can be mild or severe.
- **Genetics:** Inherited as an autosomal recessive trait—only homozygotes are at risk, and even many of them have major procedures without incident. A genetic test is available at several labs: <https://ofa.org/all-dna-tests/>
- **Function test:** Prolonged PT may indicate bleeding risk in homozygotes or dogs of unknown genetic status.
- **Treatment:** Fresh frozen plasma should be available at the time of surgery and used as needed.

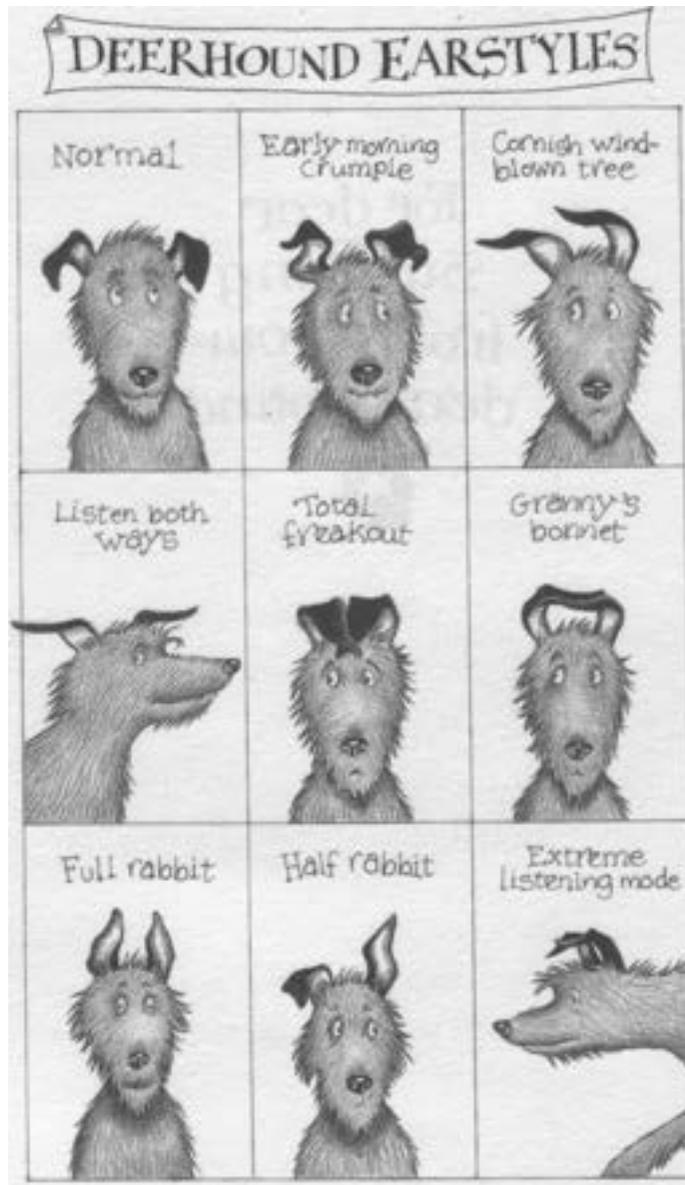
DEPOH (Delayed Post-operative Hemorrhage)

- **Presentation:** Unexpected or excessive bleeding a few hours to a few days AFTER surgery. Dogs with DEPOH form normal blood clots, but the clots break down prematurely. Bleeding may appear as peri-incisional bruising, seeping from the incision, and/or internal bleeding from cut tissues. Often fatal if not treated: <https://onlinelibrary.wiley.com/doi/10.1111/jvim.16643>
- **Genetics:** Inherited as an incompletely dominant trait. Heterozygotes 28 times more likely to bleed, but many have major procedures without incident. A genetic test is available: <https://labs.wsu.edu/court-lab/>
- **Function test:** None.
- **Prevention/Treatment:** For homozygotes, aminocaproic acid or tranexamic acid should be given either IV or orally at a dosage of 20 mg/kg beginning the day of surgery at least three hours prior to the procedure and then three times daily for five days. For heterozygotes and dogs of unknown genetic status, one of these drugs should be available and used as needed. The drugs may increase thrombosis risk in genetically normal dogs.

An ABC of Deerhound Idiosyncracies

AUTHORITATIVE GUIDE TO DEERHOUND EARS AND ROYALTY.

Shared thanks to the kindness of Jill Murphy (Dear Hound (2009)).





ANALGLANDS

Anal glands can be a real pain in the ass. Dogs that are fed raw chicken/duck necks seldom have impacted anal glands. Have them checked periodically and expressed if full or impacted. You should learn how to do this and the procedure is explained in the home vet text recommended in this Primer. “Scooting” or a distinct odour under the tail with a “wet look” around the anus indicates trouble. Chances are the glands are infected. There are two ways to handle this and both methods should be used. The glands should be expressed, flushed out with a saline solution and then packed with an antibiotic ointment such as Panalog. A culture and sensitivity (C&S) test must be done so that the dog is also placed on the appropriate oral antibiotic. Do not assume that a broad spectrum antibiotic will be effective. I know of several Deerhounds that are no longer with us when the anal gland infection spread to the kidneys. The dogs were on a broad spectrum antibiotic that had no effect on the bacteria. A C & S test is necessary.

ANTIBIOTICS

Awareness of the fact that some Deerhounds have had negative reactions to certain drugs is critical. The most common drugs that Deerhounds have an adverse reaction to are sulpha based antibiotics.

Lots of Deerhounds have had problems with sulpha drugs and several have died. Reactions include platelet count depression (thrombocytopenia) and white cell depression (leukopenia). The dog may get sluggish, bruise easily, and bleed from other areas. Avoid Trimethoprim-sulpha antibiotics which include veterinary brands such as: Tribriksen, Di-Trim, Trocoxil, Omeprazole, Mirtazapine (a.k.a. Remeron), Uniprim, generic Sulphadiazine & Trimethoprim. Human brands include: Bactrim, Septra, Sulphatrim, generic Sulphamethoxazole & Trimethoprim. No sulpha drugs should be on your dog’s medical file. Avoid Duramaxx and Rimadyl, pain medications that some Deerhounds have had toxic reaction to. Check out **APPENDIX B: Pain Management in Veteran and Double Digit Deerhounds (D3)** for a more detailed discussion on (a) Physical assistance (b) Diet and Nutrition and Joint supplements (c) Pharmacologic Therapy Options: Drugs Used as Pain Medication

Ampicillin and amoxicillin are usually benign. Clavamox and Cephalexin can cause some nausea and inappetite (always give with food), but are pretty well tolerated. Remember, any drug can cause an individual negative response. Use drugs judiciously and be observant.

When oral antibiotics are prescribed for your dog, add kefir to the meals or give daily doses of probiotics (from a health food store). Antibiotics kill the flora in the stomach and these need to be replaced for proper digestion through the use of additional “friendly” bacteria.

ADOLESCENT PIMPLES

Young puppies get lumps and spots on their belly from dirt and bacteria. These can blow up into nasty looking purple welts and then burst open. Don’t panic or vet the puppy. Just wipe clean with a solution of hydrogen peroxide and eventually they will heal. These disappear as your pup gets higher off the ground.



An ABC of Deerhound Idiosyncracies

BEDS

Inside the house and outside, your Deerhound should have his own bed. I prefer a minimum of 6" of fiberfill (quilting) with some chopped foam in a 4' x 4' covered pad and then inserted in a zippered canvas bag for easy washing. If you don't provide something very soft your dog will get callused elbows, which are unsightly and very difficult to get rid of, or worse, they may develop a bursa (water on the elbow). Most Deerhounds spend their time indoors on the couch. If you don't provide an equally comfortable spot on the floor, you can just about write off your sofa for human use. Styrofoam bead bags flatten with time and foam blocks or chipped foam for some reason will incite in your Deerhound puppy a primeval desire to trash the bed into a million microscopic pieces. A lawn covered in shredded foam takes forever to vacuum up and tends to make the neighbours worry about your sanity.



Dog bed (double thickness preferred).



Sofa's are just as comfortable as dog beds.



Bed fail after hard day of play.

An ABC of Deerhound Idiosyncracies

Deerhound Bed Fails Over The Years



Dance Me To The End.



Photo by Shamon Neill.



"I'll just lay here".



Dreaming Deerhound.



BLOAT/TORSION/VOLVULUS - GASTRITIS

Bloat (gastric dilatation) is a life-threatening condition that some Deerhounds seem susceptible to. It occurs when the stomach swells up with gas, fluid or both. Once distended, it may rotate on its long axis (gastric dilatation/volvulus - GDV). Signs are tight stomach muscles, reluctance to move, possibly some drooling... acute abdominal pain with or without a distended stomach. A mild gastric flatulence (gas) not complicated by a twist of the stomach on its axis or any other signs of severe distress is not an acute emergency and can be treated at home with an antacid gas (simethicone) and anti-acid (pepcid/famotidine) oral preparation. Keep both handy in your home vet kit. There are acupressure points on the rear stifle that can also work miracles when you hear ominous gurgling. Stimulation of the “Stomach 36” point, helps relieve digestive problems, such as stomach bloat, diarrhoea, vomiting of water and constipation. The location is just below the knee in a depression in the middle of the muscle on the outside of the shinbone. With your fingertips or thumb, use steady pressure on Stomach 36 for thirty seconds to one minute or massage in a circular motion. If you can't locate the exact acupressure point, massage the general area. Check out internet sources for the details on this: <https://www.iwclubofamerica.org/bloat-acupressure>

If you are unsure, however, do not take chances. Torsion is a life and death situation and requires immediate attention.

Generally, dogs that bloat

- eat large quantities of dry kibble without extras such as the stew mentioned under feeding, or the raw meats recommended
- eat too quickly
- are uptight and nervous;
- tend to drink water in large quantities after meals;
- have a history of gas, gurgling stomachs and gastritis.

You Must Move Quickly. This Can Kill Your Dog in a Few Hours!

BROKEN TOES

This is a common occurrence in Deerhounds. Do not have the whole leg immobilised with a cast. Keep just the toes immobilised by binding a fibreglass foot pad to the bottom of the foot that allows as much articulation at the pastern as possible but keeps the toes immobilised. A little cotton wool between the toes before setting to keep the interior dry and then check every 3 to 4 days to ensure everything looks healthy. Try and keep the foot pad on for two weeks... a major feat with a puppy. This may require that dreaded Elizabethan collar!

BOARDING

If you have to leave your Deerhound, please at all costs avoid boarding kennels. They do not have the facilities for a dog of this size and chances are your Deerhound won't eat until you get back. Find a house/pet sitter or leave him with doggy friends or relatives.

BURSA (“Bubble Butt”)

When your Deerhound's elbow or rump bones hit the ground with a thud as they do when puppies flop down to rest, a large sac the size of an orange may develop at the point of impact. This fills with fluid, which protects the point of impact/injury. While the size can be alarming and puppies look very sad as they gallop about with these bags bouncing on their pelvic bones, they do disappear if you leave them alone, which is preferable to having your vet try to drain them. Provide puppies and adults with a soft bed to lie on and you will minimise this problem. Bursas do develop occasionally regardless how you pamper your pet.



An ABC of Deerhound Idiosyncracies

“CHEESE TEST”

It is not always easy to tell if your adult Deerhound is under the weather or simply being its normal laid back self; nor is it always easy to tell if your old couch potato is alive or not.

One tried and true method that surpasses a thermometer, pulse test or fogging mirror under the nose is a piece of cheese (old Canadian cheddar is best) waved one-eighth of an inch in front of the nostrils. If there is no reaction you have either a critically ill Deerhound or it has quietly passed away.

COURSING

Lure coursing was developed to give sighthounds, primarily bred for hunting, a chance to exercise the inbred skills which today are no longer used. Plastic bags are tied to a continuous loop of string about 2000 ft. (700 metres) in length and a series of pulleys and tie-downs enable a lure operator to simulate the irregular action of pursued game. Sighthounds have a fanatical urge to chase and love this activity. It is a competitive sport with judges (usually two), scoring the dogs' performance on speed, endurance, follow, agility, and enthusiasm. In a sanctioned (AKC, ASFA, CKC) event, your dog will run twice against other Deerhounds or other breeds and the scores for both runs are totalled and posted. The first four placements are awarded points toward their field championship which they earn after achieving 100 points. Open-field coursing is the ultimate in coursing and that involves chasing after hares — also conducted as a competitive event in parts of the U.S.A. Deerhounds seldom have the agility to be effective hare killers so this sport is usually bloodless but exciting for all!

“DEERHOUND NECK” AND SPINAL PROBLEMS

The long spinal column of the Deerhound and the violent athleticism of this breed make it susceptible to herniated discs or other spinal problems. If your dog squeals with pain as it tries to raise its head from a lying position; or holds its head at a stiff unnatural angle; or lies stationary in a sphinx-like position; it has likely suffered some trauma to the spine. Have your vet confirm the diagnosis through a physical examination. I would not advise a myelogram to confirm the diagnosis. It is extremely painful and not necessary. Besides there is seldom anything that can be done surgically about “Deerhound Neck”.



“Tally-ho”



Show your vet this photo and look for a (horse) chiropractor!

Your vet may prescribe various analgesics: Meloxicam (trade name: Metacam); Carprofen (trade name: Rimadyl, not always safe with Deerhounds); Ketoprofen (trade name: Anafen); and the synthetic analogue of codeine Tramadol (trade name: Ultram). **READ Appendix B first.** Understanding pain management in this breed is important. No violent activity and time will help. **HOWEVER**, try a horse Chiropractor before the pharmaceutical fix and show them the above photograph. Great success has been achieved using chiropractors for addressing Deerhound neck pain issue. This may take more than a year to resolve but most recover on their own without surgical intervention. Physiotherapy and acupuncture may also assist in the healing process. Avoid the pain killer phenylbutazone (“bute”) for puppies as it can be fatal.

DIARRHOEA (“TheSquirts”)

Puppies are like animated vacuum cleaners. They sample everything in sight and invariably end up with bouts of diarrhoea. Building up the flora in a puppy's gut takes a long time! Slippery Elm (1/4 tsp per 10 lbs/ 1.23 ml per 4.5 kg or Kaolin based squirt medicines are your best bet for occasional diarrhoea.

Don't worry about it unless the dog has a temperature as well (over 102), seems listless, in pain or has blood in the stool. If diarrhoea is accompanied by loss of appetite, depression or dehydration, immediate attention is required.

EARS

Deerhounds very seldom have ear problems (as they are so high off the ground). An occasional swabbing out with a diluted white vinegar solution or a brand name OTIC cleansing solution should keep them clean. Check regularly. If you detect an odour and/or quantities of brown wax see your vet. Burow's (5% aluminum subacetate) is a good solution.

FLEAS

Don't use flea collars on your Deerhound. Some types are quite lethal to greyhound type dogs, which it says in very fine print inside the package. Advantage and Frontline Plus have revolutionised the life of Deerhounds wherever there are fleas. The active ingredients selamectin, fipronil, imidacloprid appear to be safe on Deerhounds.



An ABC of Deerhound Idiosyncracies

“GOOBERS-IN-THE-EYES”

Some puppies (and adults) have a tendency to get a mucus build-up in their eye corners. This appears most often between 6 months to 2 years when the eyes and eye socket growth don't seem to quite keep pace with each other. Don't fuss over it. The best way to deal with this if it occurs is a Kleenex tip or Q-tip. Should the discharge be yellowish, a slight infection has set in which will clear up quickly with an ophthalmic ointment.

LARYNGOSPASM (“Wheezles”)

This is actually a common problem in all dogs but is alarming when your Deerhound suddenly stops in its tracks and wheezes for breath (reverse sneezing). It seems to be triggered by a specific type of behaviour such as swallowing something abrasive. The noise is created when the opening to the trachea at the larynx spasms shut creating a slit-like opening instead of opening into a nice wide round tube. Even though the opening is large enough to allow adequate air to get through, it is narrow enough to cause turbulence and noise. You can alleviate the spasm by gently rubbing the dog's throat, but since the spasms are so short, let them come and go.

MATURING

A Deerhound takes a long time (2½ to 3 years) to mature and will go through strange phases in the process both mentally and physically. Puppies that appear impossibly wild and wayward do become quiet and staid at three. That long leggy look should eventually fill out to a solid deep-chested adult. The rear, which seems to grow upward much faster than the front half during the first year, will eventually become balanced and broader. The bits and pieces that grow at different rates do come together but it takes time - a good three years. A full coat comes at that age. Sometimes it is hard to remember that a 1 1/2 year old 90 lb puppy is like a four-year-old child and can do things like this... Be patient....and be tidy!

NAILS

Clip nails weekly with nail clippers such as the Resco Jumbo or some other solid type. You must get your pup used to this. There is nothing worse than trying to catch and pin down a resisting 100 lb adult whose long claws are damaging your hardwood floors or bed covers where they nest when you leave them at home alone. It should be noted that long nails can cause arthritis and pain.



Ooops... • Photo (R) by Lesa Newbitt



A winter's morning at Fern Hill • Photo by James Luce



An ABC of Deerhound Idiosyncracies

RESCUE REMEDIES: ELECTROLYTES

Deerhounds that feel under the weather due to illness and surgery often decide to die. It helps to have electrolyte ingredients and the famous Magic Meatballs ready in your freezer, plus an iron will on your part to keep your dog alive. Oral electrolytes help rehydrate your dog after dehydration caused by extreme exertion or illness that may involve vomiting or diarrhoea. Here is a simple recipe. Add the following ingredients to one litre of water (.946 litre = 1 quart) and use a syringe or turkey baster to slowly infuse it into a cheek pocket so it can be swallowed:

- 2/3 tsp. salt
- 1/2 tsp. baking soda
- 8 tsp. table sugar
- 1/3 tsp. potassium chloride



RESCUE REMEDIES: MAGIC MEATBALLS

Magic Meat Balls Full Recipe originally developed to feed dogs up to so-called “show weight” (show weight is over-weight!) and more importantly for the poor eater, the sick and the nursing mother.

- Roughly 10 lbs cheap hamburger (high fat %)
- 4 to 8 cups of Total (mixed grains) cereal, .. find the mixed grain cereal with the highest caloric content.
- Large bag of uncooked “quick” oats (about 8-10 cups oats)
- add enough to make the final mixture easy to shape into bite sized balls or a firm dough to be frozen.
- 10-12 raw egg yolks
- One 15oz jar or bag of wheat germ
- 1 and 1/4 cup quality vegetable oil (camelina or flaxseed oil ... not soya)

- 1 and 1/4 cup un-sulphured molasses
- (optional) a good dose of powdered probiotics (probiotics are good but can be added pre-feeding)

Notes: Cook the cereal in prescribed water volume and then cool.

Separate egg yolks from egg whites. Keep yolks raw for final mix and gently cool white in the cooling cereal to add back into the mix. If preferred, the egg shells can be put through a mixer, ground and added back to the mix.

Mix all well together, and make into tablespoon sized balls that can be frozen, or fill small flat plastic bags, easy to freeze, and then easy to thaw.

Uncooked Oatmeal, like Quaker Old Fashioned Oats and less expensive supermarket house brands, come in large 2 lb 10oz size (15 cups oats) or smaller 18 oz size (about 7 cups oats). 15oz jar of wheat germ is about 4 cups. Some stores only carry a 12oz jar of wheat germ, which contains about 3 and 1/4 cups of it.

For really sick animals I add two cups of dry powdered lamb-milk replacer to the mix. This is a fortified nutrition in itself, purchased from agri-business stores. We give it as reconstituted milk to puppies when they are being weaned from their mother. Kefir mixed in prior to feeding would work too.

Feed it preferably raw. Varying the cereal to meat ratio (less cereal) might make it more palatable for some dogs. Most dogs love it.

SEASONS/SPAYING/NEUTERING

The average age for the first season appears to be around 14 months and your boy may take a year before he lifts his leg. If you intend to have your Deerhound spayed, wait until after her first season... preferably after she is 5 years. Early spay/neuter has been implicated in bone cancer. See Laura J. Sanborn (2007) *The Long Term Health Effects of Spay/Neuter in Dogs* for a good summary of the research on this subject, and also I.M.Reichler (2009) "Gonadectomy in Cats and Dogs: A Review of Risks and Benefits" in *Reproduction in Domestic Animals* vol 44 (Suppl. 2: 29-35. Male and female hormones are needed to develop properly. Males may or may not be interested in your female during her first season as some do not appear to ovulate. Don't take any chances. While neutering your male is seldom necessary or advisable, if you have a pair of Deerhounds be VERY careful!! As a sober warning let me mention my litter of 22 live puppies from an almost 3 year old, bred on her second season!

ADVICE: Find a good friend that will take your male or female for the 2-3 weeks needed!

SHOWING

If you want to show, here are some words of wisdom to keep in mind:

- anyone who shows a Deerhound under 2-3 years is a real sucker for punishment;
- anyone who shows a puppy at indoor matches has a good chance of subsidising the expansion of their favourite veterinary clinic;

- anyone who shows a Deerhound that is not in top physical condition is a great source of embarrassment to the breed;
- take handling classes and look professional, your dog deserves it; train your dog to enjoy the process and the show itself;
- don't look shocked or surprised if you win; keep smiling and don't take it too seriously!



GCH Foxcliffe Hickory Wind, BIS, Westminster, USA
2011 Handled by Angela Lloyd • Bred by Ceil and Scott
Dove Photo by Steve Surfman



An ABC of Deerhound Idiosyncracies

SCOTTISH DEERHOUNDS AND STRESS

(First printed in The Windhound, September 1983)

Deerhounds, I have found, are noted for their inability to cope with stress. It is their sensitivity that makes them such a delightful breed to live with; however, that also makes them tricky to raise. A predisposition to “fall apart” physically or to fall prey to certain weaknesses in their genetic makeup seems to occur when they are subjected to stress. That is, of course, a broad generalization, but the cases are frequent enough for me to conclude that it is a Deerhound characteristic.

From the time they are puppies, Deerhounds are noticeably different from other breeds in the way they react to certain situations. For example, their reaction to strangers picking them up is that they invariably go catatonic in their arms. Shipped in a crate for the first time, they don't howl or frantically scratch to get out; they go comatose and officials assume they are drugged. They stop eating in strange surroundings, or in familiar surroundings when their owners leave. They will wither away from a minor ailment, exhibiting no will to live. Stress situations are known to trigger bloat, heart problems, skin diseases, etc. We hear of top-winning bitches that are bred and rebred that fail to conceive, or produce one or two pups. Are these bitches, who are campaigned heavily, failing to ovulate normally because they are under tremendous stress? (Similar to female athletes under intensive training whose menstrual cycle ceases, a rather common occurrence). It may be that their resistance is lower at a time when they are exposed to a vast array of bacteria and they become more susceptible to vaginal and uterine infections. Perhaps the most obvious sign to a breeder of the Deerhound's susceptibility to stress are those puppies that fail to grow up to

their maximum potential as a result of environmental factors. After working with certain bloodlines for a number of litters, most breeders have a fairly good idea of how an eight-week-old puppy will mature. On two occasions, I have been totally wrong. One was a male that should have been pushing thirty-three inches at the shoulder and 110 pounds at a year old. However, by the time he was a year old, he had his C.D. Title and had been to every match and show in the district. He was friendly and well-adjusted and spent his non-working hours on a water bed. But, at a year, he weighed only seventy-five pounds. He fulfilled his height expectations but the stress had taken its toll. He lacked bone and body...but I will admit (sheepishly) that he lived to be 14 years old! I have found that a puppy's weight gain is notably altered by the changes that take place in its environment. One litter I raised had to spend six hours in the car every weekend commuting with me. When the litter was split up, those that travelled did not gain as rapidly as those that remained in one place. It makes sense, but visually it's difficult to detect the results of the stress the puppies were subjected to. They slept or played in the back of the car and seemed no worse for the trip. Only a monitoring of their weight and growth picked up on the physical reality of the situation. As a result of the stress factor, I have a strong preference as to how Deerhounds should be raised, particularly during that first critical year. I feel that the strain of growing in itself is enough for any Deerhound puppy. Any other stress should be minimised. Socialise, sleep, and play away that first year. There is plenty of time later for formal training, showing, coursing, etc.

When they are physically mature and mentally more knowing, most Deerhounds can handle any situation that they are introduced to gradually. Too much stress at too young an age, I feel, jeopardizes their physical development and can result in problems later on in life.

TAILS (“Stud Dog Tail”

Dogs have an extra oily area about one-third of the way from the base of their tail on the top, known in wolves as the “pre-caudal tail gland.” This circular area of skin is different from the skin anywhere else on the dog’s body. Much more noticeable in older male dogs, this zone is more active in the presence of male hormones. The hairs here emerge singularly; no compound hair follicles are present. The skin of the tail gland area is rich in sebaceous and apocrine glands. It is not uncommon for this area, especially in older dogs, to be hairless due to frictional loss of the coarse, single hairs.



The Long Dash • Photo by Luis Saenz





Am. Can. Ch. Gwent's Trefor O'Femhill

TAIL INJURIES

Stemming the flow of blood from a cut or injury on the tip of the tail can be a real problem that at its worst may result in amputation of the tip by frustrated vets and owners. There is no easy solution to this, but here are methods that have worked:

- “Kwik-Stop” on the cut. This is a product developed for overzealous nail cutters that leave their dogs with a bleeding nail quick;
- invert the tail so that the tip points upward rather than hanging down either by taping it in a loop up the leg or fashioning a sling that hooks around the hips and holds the tail upright;
- treat the tail (saline, antibiotic cream) and pad it about with soft cotton and then place the tail in a length of foam pipe wrap that is designed to hang from a sling about the waist...pictured to the right. This is an inexpensive effective way of protecting the tail. If self-adhesive vet wrap is used over the soft cotton, don't wrap tail too tight!! There should be no pressure on the tail as its circulation is very poor.

VAGINITIS

Common in female puppies are bouts of “vaginitis” (copious pus-like discharge). This is actually the mucous producing cells overdoing it before the first heat cycle. It is not an infection and antibiotics will not make it go away. It will go away when the bitch has her first heat cycle.

WORMS

Your puppy will have been wormed several times (2 weeks, 6 weeks and 8 weeks) before you get him. Puppies generally have round worms.

Check for worms at 3 months and every 3 months thereafter until the dog is over a year. Then, an annual check should be sufficient unless the dog's condition merits an unscheduled inspection. Dogs invariably get tapeworms from fleas or eating rabbits. For roundworms, use Strongid-T or Pyra-pam (pyrantel pamoate), for tapeworms use Droncit, do not use Telminitic (active ingredient mebendazole). If you are in a heartworm area, have your vet prescribe caricide or ivermectin base pills. Do not use any wormer which uses oxibendazole (for hook worms and roundworms) as it can cause liver damage.





Fernhill's Mary Electra Buchanan, Aged 6 months • Photo by James Forrester

You and Your Veterinarian

What your DVM needs to know about Deerhounds!

Find a vet that you feel comfortable with and trust. You should always have explained to you what may be wrong with your dog, the name of any medication that is prescribed, and any risks in using it. Common sense is necessary in relating to your vet. No one knows your dog better than yourself. Don't get talked into an anaesthetic for x-rays or stitching small wounds. This only adds to your bill and jeopardises the life of your dog. Don't leave your dog overnight for minor problems. Deerhounds don't respond well in unfamiliar surroundings. Try not to "over-vet" your dog. A little "benign neglect" or a "wait and see" attitude may be better than an immediate high tech solution. Check with the breeder or some other long term Deerhound owner for options when things go wrong. Always watch for tell-tale signs. An easily readable rectal thermometer is a necessity. Normal for a dog is 101°-102°. An elevated temperature tells you something is wrong. Head off to your clinic quickly. Not all veterinarians are familiar with Deerhounds or sighthounds. It is up to you to ensure that your vet is aware of differences between Deerhounds and other breeds. There are some basic physiological differences between Deerhounds and other breeds (i.e. "normal dogs") that your vet should know about. You need to be familiar with this information too, especially being able to recognize the beginnings of heart disease, whether your Deerhound is Factor VII affected, free of it, a carrier and thus may be predisposed to post-operative bleeding; and whether your male is genetically predisposed to cystinuria. You **MUST** watch your boy pee daily and if you detect any effort to pee with no results, act fast! Blocking with cystine stones has become very common in Deerhounds and your male needs an immediate ultrasound to confirm. Neutering your boy is the only long term solution... don't waste time on diet solutions.

See: <https://deerhoundhealth.org/help-my-deerhound-is-having-trouble-peeing/#more-81845>

Copy the next few pages and place it on your dogs file at your clinic:

- great risk from anaesthesia when injectable barbiturates are used. Give your vet a copy of Betty Stephenson, DVM's Anaesthesia article (see: the A B Cs Section);
- low end of the "normal" range for thyroid levels
- low (50 bpm) to irregular heart rate with a marked sinusal arrhythmia.
- Make certain that your vet has a copy of the echocardiogram normal values for Deerhounds;
- higher than normal heart weight (volume) to body weight ratio
- higher than average blood pressure
- higher red blood cell counts, lower white blood cell counts and lower total plasma protein concentration
- sensitivity to certain drugs: sulpha-trimethaprim
- predisposition to malignant hyperthermia
- predisposition to post operative bleeding. Every Deerhound that undergoes elective surgery should be given aminocaproic acid* for the next 5 days to reduce the risk of delayed post-operative bleeding. Aminocaproic acid is available in 500 mg scored tablets. The dose should be as follows (basically 8 mg/lb):

Dog Weight	Dose Every 8 Hours
55 to 79 lbs	500 mg (1 tablet)
80 to 104 lbs	750 mg (1 tablet)
105 lbs	1000 mg (2 tablets)

Source: Dillberger, J.2011. "Post Operative Bleeding in greyhounds and what it means for Deerhounds." *The Claymore* May-June 2011: 6-9 (publication of the S.D.C.A)

Dillberger, J. 2019 "Delayed Post-Operative Bleeding - an Update on Tranexamic Acid" *The Claymore* March-April, 2019 pp. 12 - 19 (a publication of the S.D.C.A.) see: <https://deerhoundhealth.org/delayed-post-operative-bleeding-an-update-on-tranexamic-acid/>

Tranexamic acid (range from 5 to 10 mg/kg of body weight 3 times a day) can be used instead of Amicar (aminocaproic acid) starting the day of the surgery and continuing for 5-6 days.(Source: personal communication Dr. Couto July 17, 2012)

See also: <https://deerhoundhealth.org/post-op-bleeding-follow-up/>

You and Your Veterinarian



Queen Victoria's 'Hector' by Sir Edwin Landseer R.A., (1802 - 1873)

Your vet **MUST** obtain a copy of this Deerhound specific research:

Sheerer, K.N., C.G. Couto, L.M. Marin, S. Zaldivar-Lopez, M.C. Iazbik, J.E. Dillberger, M. Frye, D.B. DeNicola. (2013) "Haematological and biochemical values in North American Scottish Deerhounds" *Journal of Small Animal Practice* (July 2013) 54:354-360. It is available here: <https://onlinelibrary.wiley.com/doi/abs/10.1111/jsap.12086> and be informed of your dogs status for the genetic tests: Factor VII and DEPOH;

CLINICAL GUIDE FOR ECHOCARDIOGRAM EXAMINATION FOR SCOTTISH DEERHOUNDS

Your vet **MUST** be given a copy of this:

The normal ranges for Scottish Deerhound heart parameters should be shared with your veterinarian and specialist. These values were established by Dr. Philip Fox, from the cardiac clinic he did at the Vermont National Specialty in 2004. While not published by Dr. Fox, these parameters are confirmed by Dr. Vollmar in *Kleintierpraxis* (1998) 43: 497-508

Scottish Deerhound General Clinical Guide for Echocardiographic Examination

Based upon an average weight 100 lbs/45 kg:

- Left atrium should be no larger than 50-55 mm
- Aorta should be no wider than 30-33 mm
- LA:Ao ratio should be <1.5:1
- Left ventricle end-diastolic dimension should be no greater than 55-60 mm
- Left ventricle end-systolic dimension should be no greater than 40-45 mm
- LV Wall end-diastolic thickness should be >8-9mm
- LV Shortening fraction should generally be >20 %, and more commonly, >25%
- Heart Rhythm should be sinus or sinus arrhythmia

Note: The echocardiogram is one part of the database that includes medical history, physical examination, ECG, and chest radiograph. Optimal diagnosis is based upon consideration of these variables. These should be used as **GENERAL** guidelines for a normal dog, A particularly large or small animal, could fall outside of this range.

VETERINARY PRIMER

The Dog Owners Home Veterinary Handbook (2007) D.M. Eldredge DVM, L.D. Carlson DVM, D.G. Carlson DVM, J.M. Giffin MD, B. Adelman (ed) ISBN: 978-0-470-06785-7 is an excellent non-technical reference manual for the lay person. I would also suggest for alternative feeding regimes and a "natural" approach, Dr. Pitcairn's *Complete Guide to Natural Health for Dogs & Cats* (Rodale Press, 1995).

Table 3 and its source on page 36 should be given to your vet as well as the heart data below.

Table 3: Analytes and Features Characteristic of Greyhound Dogs Compared with Those of Other Breeds

Higher Values	Lower Values	Unique Features
PCV/HCT	WBC count	Non-staining eosinophil granules
RBC count	Neutrophil count	Higher frequency of DEA 1.1- negative dogs
Hemoglobin concentration	Platelet count	
MCV*	Fibrinogen	
MCHC	TEG values: K-time, angle, MA, and G	
Hemoglobin affinity for O ₂	Potassium	
Creatinine	Phosphate	
Glomerular filtration rate	Calcium, ionized	
Alanine aminotransferase	Magnesium, ionized	
Aspartate aminotransferase	Serum total protein	
Sodium	Total globulins	
Chloride	α and β globulins	
Total CO ₂	IgA and IgM	
Bicarbonate	Haptoglobin	
Cardiac troponin 1	Total T ₄ and free T ₄	

Abbreviated Hematology Values

PCV	Packed cell volume
HCT	Hematocrit
WBC	White blood cells
RBC	Red blood cells
DEA	Dog Erythrocyte Antigen
MCV*	Mean cell volume
MCHC	Mean corpuscular hemoglobin concentration
TEG	Thromboelastography
K Time	Blood clot values
MA and G	Blood clot values
IgA IgM	Antibodies
T ₄	Thyroid hormone

* Reported in one study only

Source: S. Zaldivar-Lopez, L.M. Martin, M.C. Iazbik, N. Westendorf-Stingle, S. Hensley, C.G. Couto, "Clinical pathology of Greyhounds and other sighthounds" *Veterinary Clinical Pathology* 40/4 (2011) 414-425



You and Your Veterinarian

VETERINARY FIRST AID KIT

There are doggy First Aid Kits that can be purchased or made up yourself and the essentials should include:

- ✓ cotton gauze bandage wrap,
- ✓ Vet Wrap,
- ✓ Adhesive tape roll
- ✓ Non-stick (Telfa) bandages,
- ✓ cotton gauze pads,
- ✓ cotton swabs or Q-tips,
- ✓ rectal thermometer,
- ✓ tweezers,
- ✓ LED head lamp or small flashlight for peering into orifices,
- ✓ haemostat (for pulling ticks, thorns, large splinters, etc), small
- ✓ blunt end scissors,
- ✓ tooth scraper for removing tartar
- ✓ 3 ml syringe & 35 cc syringe
- ✓ paper towels

Then there are some do-it-yourself remedies that should be in your kit that are useful only if applied in tandem with a lot of common sense and some experience. The basics include:

- ✓ Sterile saline solution (contact lens squirt bottle works well) for flushing out eye contaminants and wounds
- ✓ Styptic powder for stopping small wounds from bleeding
- ✓ Epsom salt (mix 1 teaspoon in 2 cups of warm water) for drawing out infection and bathing itchy paws and skin
- ✓ Electrolytes or electrolyte ingredients for rehydrating

- ✓ Benadryl 1-2 mg per lb, every 8 hrs (65 lb dog, 2-4 25 mg tablets every 8 hrs) (itching, allergies, bug bites and stings)
- ✓ See APPENDIX B (Pain Management in Veteran and Double Digit Deerhounds (D3)
- ✓ hydrogen peroxide to induce vomiting: 1-3 tsp every 10 minutes until dog vomits
- ✓ Activated charcoal tablets (effective in absorbing many toxins)
- ✓ Kaopectate 1 ml per 1 lb per 2 hours (3-4 tbsp per 65 lb dog, 2 hrs) (for the squirts)
- ✓ Immodium 1 mg per 15 lbs 1-2 times daily (for the squirts)
- ✓ Simethicone (anti gas) 180 mg for gassy dogs and for gurgling stomachs add Pepcid and then immediately figure out what triggered this and eliminate it from the diet!
- ✓ Pepcid (famotidine) original strength (anti-acid) 10 mg for gurgling stomachs
- ✓ Manuka honey for wounds (has natural antibiotics). If they lick it, it is good for their stomach flora.

The last three items are absolutely necessary for a Deerhound owner's First Aid Kit.

- ✗ **NEVER EVER** give Tylenol or ibuprofen (Nuprin, Motrin, Advil, etc.) which are toxic to dogs. Only aspirin is safe for dogs, and buffered aspirin or ascriptin is preferred to minimize stomach upset.

Puppy or Adult?

There is simply no more delightful companion in the world than a wise old Deerhound.

If reading Section 2 exhausted you, and suitable acreage for growing out a puppy exists only in your dreams; if you value your carpets, shoes, unblemished furniture and sanity, yet still long for a large, grey, hairy companion on your walks, consider purchasing an adult Deerhound. “Heresy! (you think), I need a puppy so that it will bond to me” Nonsense! An adolescent (up to three years) or adult will bond as firmly as a puppy. How quickly depends on the individual dog and the effort you put into the relationship. A Deerhound is very quick to sense when it has landed into a “gravy-train” set up and responds accordingly. Adjustment may take thirty seconds after entering your household or as much as three months. With time you should have a relationship that equals that of a hand reared puppy, but without the tell-tale signs that an undisciplined puppy once cavorted about your premises.

If you plan to acquire an older Deerhound, look for a house pet that has been well socialised and always insist on a lengthy enough trial period that gives the dog a chance to adjust and show its real personality. That typical Deerhound personality, sweet, gentle and loving, will invariably emerge although there may be an initial indifference or withdrawal stage. A kennel raised older Deerhound will likely pose some special problems that you will not encounter with a home raised dog.

Fortunately, few Deerhounds are raised in that environment as they fail to develop properly, either mentally or physically. A mature Deerhound is happy to spend most of the day ensconced on your couch, but will require daily (as a minimum) a long walk and a good run. If you fail to maintain this regime even with your twelve year old, the rear muscles will atrophy with age and your Deerhound will be unable to get up and lie down unassisted (see APPENDIX B).

It is sad to have to put your old friend down when everything else is functioning simply because he can no longer move about. Fitness must be maintained throughout your dog’s lifespan. Of course, common sense must prevail. You have to be careful not to overdo it. A thirteen year old of mine was happy to amble along at her own pace for about a mile, then either return on her own or lie in the sun waiting until the rest of the crowd came back. Geriatrics need to move along slowly and sniff at leisure. There is simply no more delightful companion in the world than a wise old Deerhound! It is hard to believe that at one time they were frustrating adolescents that could take off in hot pursuit after a mounted policeman trying desperately to stay on a bolting horse, while you shrieked your recall in vain (true story). Judging from the number of Deerhound owners that specifically ask that their next dog be a young adult rather than a puppy, there is something to be said for the instant perfect companion without the pain.



Appendix A

Diet and Cardiomyopathy - the History, Debate and Implications for Deerhounds

~ Compiled by Barbara Heidenreich ("Fernhill") January 21, 2023

Let's start with a bit of pet food history. Before WWII, more than 90% of commercial pet food came in cans, and contained mostly (if not only) meat. However, metal was needed for the military, and by the time the war ended, 85% of pet food was dry kibble. It still contained a good amount of meat, and this is what prevented taurine deficiencies from occurring. The primary machinery for producing what we now know as dry food is called an extruder. This piece of equipment was introduced in the 1950's. To get the correct consistency of dough for the extruder, the recipe called for a minimum amount of starch. This started the trend of ever-increasing quantities of cereal grain, such as corn, in dry foods. At the same time, meat processors were becoming increasingly proficient at getting more meat from livestock carcasses. So, pet food makers substituted other leftover animal tissues or "by-products". Over time, the result was a high-grain, low-meat dry food, for which the profit margin was - conveniently - much higher than for canned food. In the late 1970's, cats started going blind or dying of congestive heart failure due to a condition called dilated cardiomyopathy (DCM). Many of those cats were eating the same pet food specifically designed for dogs (Hill's Science Diet), and this was noticed by researchers at UC Davis. In the mid 1980's, they published the results of their research showing that taurine deficiency was the cause of the issue...the pet food industry responded by adding supplemental taurine to cat food.

Dogs make their own taurine from sulfur-containing amino acids, primarily cysteine, but also methionine. It was thought that, because they could produce it themselves, dogs didn't need supplemental taurine.

However, it is now known that large dogs produce taurine at a slower rate than small dogs, putting them at risk for a deficiency which will affect heart function. Genetics also play a significant role, with certain breeds and family lines being predisposed to developing DCM. The existence of a link between taurine deficiency and DCM in dogs has been known since 1997, and the simple fact is that some dogs can't supply sufficient to meet their own taurine needs. L-carnitine, another amino acid found primarily in meat, may also play a role in the development of DCM in a small percentage of dogs. L-carnitine becomes unavailable in pet food through processing, and is generally not added back due to its high cost. It is now known that some dog breeds (certain lines of spaniels, retrievers (notably Golden Retrievers), and particularly Newfoundlands) develop the same taurine-dependent form of DCM that had killed so many cats. No research has been done on whether Deerhounds might have the same taurine dependent DCM.

In July 2018, the United States Food and Drug Administration (FDA), a federal agency responsible for protecting public health by ensuring food and drug safety, announced that it had begun investigating reports of DCM in dogs eating certain pet foods, many labeled as "grain-free," which contained a high proportion of peas, lentils, other legume seeds (pulses), and/or potatoes in various forms (whole, flour, protein, etc.). By December 2018 research expanded to include "BEG" diets (boutique companies, exotic ingredients, or grain-free diets) as also being implicated.

In June 2019, the FDA did provide pet owners with a massive amount of data that included the brand names associated with the more than 500 case reports they have received. The flurry of research that followed has concluded (June 2020) "there is no scientific evidence that a grain-free diet causes canine dilated cardiomyopathy". A highly qualified team of board-certified veterinary nutritionists, cardiologists and PhD researchers published a literature review on DCM in dogs in the *Journal of Animal Science*.

Diet and Cardiomyopathy - the History, Debate and Implications for Deerhounds

This review, which examined more than 200 studies, came to the italicized conclusion above (Mansilla, W.D., et al.2019.

“Special topic: The association between pulse ingredients and canine dilated cardiomyopathy: addressing the knowledge gaps before establishing causation”. J. Anim. Sci. 2019. 97(3):

983-997). The issue is complex with both genetic and dietary factors likely being involved in the development of canine DCM.

NOTE: On December 23, 2022 the FDA announced they have withdrawn this BEG → DCM link...there was no press release, but simply an admission that the evidence was not there.

The value of this food dispute and research to the Deerhound community has actually been extremely useful. Heart disease in Deerhounds is a top cause of mortality: UK (2014): 27% of reported Deerhounds died of heart disease ; USA (2011): 22 % of males died of heart disease with 15% from DCM & Bitches -14% died of heart disease with 8% diagnosed as DCM. Summarized below are some research results that Deerhound owners should be aware of:

A. DCM is a common form of heart disease in dogs, especially in large and giant breeds, which produce less taurine than smaller dogs on the same diet. Diet is a possible causal factor in about 20-30% of dogs with DCM. Although the methionine content in pulses is lower compared to animal-based proteins, this can be remedied by using ingredients rich in this amino acid or using supplementation.

B. Research found that some dogs can't supply their own taurine needs (is this the genetic link to heart disease?).

C. There is significant research that indicates that large body size in dogs is accompanied by shorter life span (Li Y, 1996; Galis, 2006; Greer, 2007; Kraus, 2013). Recent research revealing that large dogs may not produce taurine as efficiently as smaller dogs may be a link to their shorter lifespan.

D. Older dogs produce taurine at a slower rate.

E. Cooking proteins can potentially lead to the destruction of amino acids from which dogs make taurine. Taurine from fish for example, is diminished by heat processing... around 30% is lost.

“Taurine deficiency in dogs is suggested to result from reduced sulfur amino acid bio-availability in dietary ingredients that are heat processed, such as rendered meat meals”.

F. Inactivity has been linked to low taurine synthesis...Deerhounds are a coursing breed and need daily exercise throughout their lives; and even in old age motivate them to run!

Recommendations:

1. Do NOT feed only dry kibble. Dry/kibble pet foods remain the leading style of pet foods linked to DCM. Dry kibble is also directly linked to gastric dilatation volvulus (GDV/"bloat") another leading cause of death in Deerhounds. Avoid kibble containing peas and lentils.

2. As Deerhounds are a “large” breed and yours may be genetically predisposed to not processing taurine efficiently, ensure that your dog is getting plenty of taurine by adding to each meal raw meats high in taurine and sources of the amino acid precursors, methionine and cysteine (raw dark turkey, chicken, muscle meats -including tongue and heart and seafood).

3. Do not cook the proteins you are feeding your dog as cooking destroys the amino acids needed to make taurine.

4. As your Deerhound ages, again ensure that it is getting raw meat high in taurine and consider the addition of daily taurine-L-carnitine-CoQ10 supplements. Supplemental taurine-L-carnitine-CoQ10 usually comes in capsules of 500 or 1000 mg.(and is very safe even at extremely high doses) and can be given at up to 1000 mg per day for every 40 pounds of the dog's body weight. It also has very little taste and is easy to give. Because vitamins B6 and B12, are co-factors in carnitine and taurine synthesis (both of which are important for normal myocardial function), a deficiency or insufficiency in B vitamins potentially could contribute to DCM so ensure these vitamins are part of the diet.



Daily Walk at Fernhill. 2022

5. Dogs also require essential fatty acids (omega-3 -6 -9) and these fatty acids have important roles in alleviating allergies, autoimmune conditions, reducing heart disease, joint problems, coat and skin problems, central nervous system disorders, as well as many cancers. If you're already feeding your pet a commercial dog food, then chances are they're already getting more than enough Omega-6 from it, depending on each dog food's formula... and too much of it is just not that good for dogs (it is inflammatory). The best sources of Omega 3 appear to be hemp oil, wild caught salmon (not farmed), fish oils (mackerel, herring, sardines and anchovies are preferred), camelina oil extracted from camelina sativa plants. The advantage of camelina is that it has a ratio of omega 3 to 6 (1.8:1) that is higher in 3 and lower in 6 which is recommended (9:1 by Dr. Jean Dodds).

6. Exercise your dog daily and continue that regime throughout their lives...inactive dogs appear to be less able to synthesize taurine. This important finding has a direct link to a 2007 survey undertaken of double-digit Deerhounds (Claymore. May-June2007.pp.15-18) where it was very striking that a lifetime of dedicated daily exercise (several hours a day with free running) was reported by all owners of double digit deerhounds, a breed where self-motivation to exercise declines rapidly as they age.

7. Given the link between size and longevity... and large dogs not producing taurine as efficiently... in today's Deerhounds, where size well exceeds the historic functional preference of not more than 30 inches/76.2 cm, it is important not to select an overly big dog. At the shoulder for males, look to select "moderate size" for ownership and breeding and as a breeder do not focus on promoting Deerhounds into the "giant" category when the breed Standard describes "a rough-coated greyhound of larger size and bone."



Appendix A References

Diet and Cardiomyopathy – the History, Debate and Implications for Deerhounds

General overview articles relating diet/taurine to DCM (chronological):

Kramer GA, Kittleson MD, Fox PR, Lewis J, Pion PD.1995. “Plasma taurine concentrations in normal dogs and in dogs with heart disease”*J Vet Intern Med.* 1995 (9):253–8.

United States Department of Health and Human Services National Institutes of Health homepage on the Internet . Bethesda: Program Announcement: PA-06–136; updated 2006 Mar 3; cited 2006 Apr 25 *Nutrition and diet in the causation, prevention, and management of heart failure* (R21); about 30 screens . Available from: <http://grants.nih.gov/grants/guide/pa-files/PA-06-136.html>

Sanderson SL, Gross KL, Ogburn PN, Calvert C, Jacobs G, Lowry SR, Bird KA, Koehler LA, Swanson LL.2001. “Effects of dietary fat and L-carnitine on plasma and whole blood taurine concentrations and cardiac function in healthy dogs fed protein-restricted diets.”*Am J Vet Res.* 2001 Oct.62(10):1616–23. *Erratum in. Am J Vet Res.* 2001 Dec.62(12):1968.

Freeman LM, Rush JE, Brown DJ, et al.2001. “Relationship between circulating and dietary taurine concentrations in dogs with dilated cardiomyopathy.” *Veterinary Therapeutics* 2001: 370-378. Fascetti AJ, Reed JR, Rogers QR, Backus RC.2003. “Taurine deficiency in dogs with dilated cardiomyopathy: 12 cases (1997–2001)”. *J Am Vet Med Assoc.* 2003; 223:1137–41. <https://avmajournals.avma.org/doi/abs/10.2460/javma.2003.223.1137> Bélanger MC, Ouellet M, Queney G, Moreau M.2005. “Taurine-deficient dilated cardiomyopathy in a family of golden retrievers.” *J Am Anim Hosp Assoc.* 2005;41:284–91.

Hosp Assoc. 2005;41:284–91. Ripps H, Shen W.2012. “ Taurine: a “very essential” amino acid”*Molecular Vision.* 2012; 18:2673-2686.

Vollmar AC, Fox PR, Servet E, Biourge V.2013. “Determination of the prevalence of whole blood taurine in Irish wolfhound dogs with and without echocardiographic evidence of dilated cardiomyopathy”*Journal of Veterinary Cardiology.* 2013 Aug 22. 15(3):189-196

Simpson S, Rutland P, Rutland CS.2017. “Genomic Insights into Cardiomyopathies: A Comparative Cross-Species Review”. *Veterinary Sciences.* 2017; 4:19 (26 pages).

McCauley, Sydney M., Stephanie D Clark, Bradley W Quest, Renee M Streeter, Eva M Oxford (2020). “Review of canine dilated cardiomyopathy in the wake of diet-associated concerns”. *Journal of Animal Science* , Volume 98, Issue 6, June 2020 <https://academic.oup.com/jas/article/98/6/skaa155/5857674>

Dr. Jean Hofve, Holistic Veterinarian, DVM.2020. “Taurine, Dog Food, and Heart Disease in Dogs”*Only Natural Pet* July 14 2020 https://www.onlynaturalpet.com/blogs/holistic-healthcare-library/taurine-dog-food-and-heart-disease-in-dogs-1?fbclid=IwAR0nQoqx5RCveIxtffOaAqkTLgSIUKZnKPua_nXwUq0y1Rer2xD1U4NTJFQ

Case, Linda.2021. “ DCM in Dogs: Taurine’s Role in the Canine Diet. What is taurine-deficiency dilated cardiomyopathy (DCM), and how can dog owners prevent it?”

Whole Dog Journal. August 15, 2018 Updated: January 25, 2021, https://www.whole-dog-journal.com/food/dog_food/dcm-in-dogs-taurines-role-in-the-canine-diet/?fbclid=IwAR0K29Bj7ZVPt7yu5J8V92eZx-6Q7LQxpafjJOA9eQwcnX6CZb7AoeI13hg

Body size is directly linked to shorter lives:

There is significant research that indicates in domestic dogs that large body size is accompanied by shorter life span (Li Y, 1996; Galis, 2006; Greer, 2007; Kraus, 2013)

Delaney SJ, Kass PH, Rogers QR, Fascetti AJ. 2003. "Plasma and whole blood taurine in normal dogs of varying size fed commercially prepared food" *J Anim Physiol Anim Nutr* (Berl). 2003; 87:236-44.

Tôrres CL. 2003. "The effects of dietary ingredients, bacterial degradation in the gut and amount of food consumed on taurine status of dogs of different body sizes dissertation" *Davis, CA: University of California*; 2003.

Tôrres CL, Backus RC, Fascetti AJ, Rogers QR. 2003. "Taurine status in normal dogs fed a commercial diet associated with taurine deficiency and dilated cardiomyopathy" *J Anim Physiol Anim Nutr* . 2003(87) :359-72.

Delaney SJ, Kass PH, Rogers QR, Fascetti AJ. "Plasma and whole blood taurine in normal dogs of varying size fed commercially prepared food." *Journal of Animal Physiology and Animal Nutrition* 2003; 87:235-244.

Kealy RD, Lawler DF, Ballam JM, Mantz SL, Biery DN, Greeley EH, Lust G, Segre M, Smith GK, Stowe HD. Effects of diet restriction on life span and age-related changes in dogs. *J Am Vet Med Assoc*. 2002;220:1315-20.

Cooking affecting Taurine Concentrations:

Spitze AR, Wong DL, Rogers QR, Fascetti AJ.

Taurine concentrations in animal feed ingredients; cooking influences taurine content. *Journal of Animal Physiology and Animal Nutrition*. 2003; 87:251-262.

Friedman M. Dietary impact of food processing. *Annu Rev Nutr*. 1992;12:119-37.

Piva G, Moschini M, Fiorentini L, Masoero F. Effect of temperature, pressure and alkaline treatments on meat meal quality. *Anim Feed Sci Technol*. 2001;89:59-68.

Effectiveness of Supplementation

Beynen Anton C. 2020. *Omega 6-3 ratio in dog food* https://www.researchgate.net/publication/341286652_Beynen_AC_2020_Omega_6-3_ratio_in_dog_food/references

Dove, R.S. 2001. "Nutritional therapy in the treatment of heart disease in dogs". *Alternative Medicine Review*, Sept, 2001. 6(Suppl):S 38-S45

Pion PD, Sanderson SL, Kittelson MD. 1998. "The effectiveness of taurine and levocarnitine in dogs with heart disease". *Vet Clin North Am Small Anim Pract*. 1998 (28):1495-514.

Sanderson SL. 2006. Taurine and carnitine in canine cardiomyopathy. *Veterinary Clinics of North America: Small Animal Practice*. 2006 Nov. 36(6):1325-43, vii-viii.

Sanderson SL, Gross KL, Ogburn PN, et al. 2001. "Effects of dietary fat and L-carnitine on plasma and whole blood taurine concentrations and cardiac function in healthy dogs fed protein-restricted diets". *American Journal of Veterinary Research*. 2001 Oct; 62(10): 1616-1623.

Age, Exercise and activity increases plasma taurine concentrations:

Backus, Robert C., Kwang Suk Ko, Andrea J. Fascetti, Mark D. Kittleson, Kristin A. MacDonald, David J. Maggs, John R. Berg, Quinton R. Rogers. 2006. "Low Plasma Taurine Concentration in Newfoundland Dogs is Associated with Low Plasma Methionine and Cyst(e)ine Concentrations and Low Taurine Synthesis". *The Journal of Nutrition*, Volume 136, Issue 10, October 2006, Pages 2525-2533, <https://doi.org/10.1093/jn/136.10.2525>

Ko KS, Backus RC, Berg JR, et al. 2007. "Differences in taurine synthesis rate among dogs relate to differences in their maintenance energy requirement." *The Journal of Nutrition*, Volume 137, Issue 5, May 2007, Pages 1171-1175, <https://doi.org/10.1093/jn/137.5.1171>

Essential Fatty Acids:

A good summary of the need for essential fatty acids... then addresses the question: fish? vs camelina? <https://smarteartcamelina.com/blogs/news/camelina-or-fish>
<https://www.dogsnaturallymagazine.com/omega-oils-for-dogs/>
"Camelina oil is another newcomer to the omega scene. Its claim to fame is a high vitamin E content... but it contains only ALA and LA and doesn't contain GLA".

There is peer reviewed research on camelina in people etc... not much on dogs but some summaries: <https://wildgold.com/4-benefits-of-camelina-oil-supplements-for-dogs/>
<https://doxel.co/en/blog/benefits-camelina-oil-dogs/>

Beet Pulp/potato/grains implicated in decreasing Taurine:

Ko KS, Fascetti AJ. 2016. "Dietary beet pulp decreases taurine status in dogs fed low protein diet." *Journal of Animal Science and Technology* 2016; 58:29-39.

Wall T. 2018. "Do peas and potatoes really cause heart disease in dogs?" *Petfood Industry*. 2018 Jul 19; online bulletin.

Smith, C.E., Parnell, L.D., Lai, C.Q. et al. 2021. "Investigation of diets associated with dilated cardiomyopathy in dogs using foodomics analysis". *Sci Rep* 11, 15881 (2021). <https://doi.org/10.1038/s41598-021-94464-2> (Discussion extract of key findings: "Peas and, to a lesser degree, lentils appear to be a possible primary source for the biochemical compounds found to be significantly higher in 3P/FDA diets FDA brands listed as 'implicated' in DCM. While we cannot establish with certainty if any of these compounds and ingredients are causal for disease, the findings support peas as a leading possible ingredient associated with diet-associated DCM in dogs.... One possible hypothesis regarding how the 3P/FDA diets may contribute to DCM posits that diets could be insufficient in key nutrients that lead to disease.

With respect to nutrient insufficiency, several compounds that are relevant to cardiac metabolism, including B vitamins and related compounds, were lower in 3P/FDA diets. B vitamins are co-factors in numerous reactions relevant to cardiac metabolism. Because vitamins B6 and B12, for example, are co-factors in carnitine and taurine synthesis (both of which are important for normal myocardial function), a deficiency or insufficiency in B vitamins potentially could contribute to DCM^{52,53}. B vitamins are heat-sensitive, so the results could be related to the amount of B vitamins included in the formulations by individual manufacturers and to levels remaining after extrusion").

Smith CE, Parnell LD, Lai C-Q, Rush JE, Freeman LM. Investigation of diets associated with dilated cardiomyopathy in dogs using foodomics analysis. *Sci Rep* 2021;11:15881. doi: 10.1038/s41598-021-94464-2. OR pubmed.ncbi.nlm.nih.gov/3454102/

by Lisa M. Freeman, DVM, PhD, DACVIM (Nutrition) *Diet-Associated DCM: Research Update*

Diet-Associated DCM: Research Update-Clinical Nutrition Service at Cummings School (tufts.edu)

https://vetnutrition.tufts.edu/2021/09/diet-associated-dcm-research-update/?fbclid=IwAR1-sUgYl3ykVLD22GPkrSAVbWYbLdQymsVLVQyh2be81I_KzgPjRpXiJDM

Peer-Reviewed Research Studies on Diet-Associated DCM:

1. Kaplan JL, Stern JA, Fascetti AJ, et al. Taurine deficiency and dilated cardiomyopathy in golden retrievers fed commercial diets. *PLoS One* 2018;13(12): doi: 10.1371/journal.pone. 0209112.
2. Adin D, DeFrancesco TC, Keene B, et al. Echocardiographic phenotype of canine dilated cardiomyopathy differs based on diet type. *J Vet Cardiol* 2019;21:1-9.
3. Ontiveros ES, Whelchel BD, Yu J, et al. Development of plasma and whole blood taurine reference ranges and identification of dietary features associated with taurine deficiency and dilated cardiomyopathy in golden retrievers: a prospective, observational study. *PLoS One* 2020;15(5): doi: 10.1371/journal.pone.0233206.eCollection 2020.
4. Freid KJ, Freeman LM, Rush JE, et al. Retrospective study of dilated cardiomyopathy in dogs. *J Vet Intern Med* 2021;35:58-67.
5. Adin D, Freeman LM, Stepien R, et al. Effect of diet type on circulating taurine concentrations, cardiac biomarkers, and echocardiograms in four dog breeds. *J Vet Intern Med* 2021;35:771-779.
6. Walker AL, DeFrancesco TC, Bonagura JD, et al. Association of diet with clinical outcomes in dogs with dilated cardiomyopathy and congestive heart failure. *J Vet Cardiol* (Online, ahead of print). doi: 10.1016/j.jvc.2021.02.001.
7. Smith CE, Parnell LD, Lai C-Q, Rush JE, Freeman LM. Investigation of diets associated with dilated cardiomyopathy in dogs using foodomics analysis. *Sci Rep* 2021;11:15881. doi: 10.1038/s41598-021-2. OR pubmed.ncbi.nlm.nih.gov/3454102/

Related Peer-Reviewed Research Studies:

1. Donadelli RA, Pezzali JG, Oba PM, et al. A commercial grain-free diet does not decrease plasma amino acids and taurine status but increases bile acid excretion when fed to Labrador Retrievers. *Transl Anim Sci* 2020;4:1-12.
2. Pezzali JG, Acuff HL, Henry W, et al. Effects of different carbohydrate sources on taurine status in healthy Beagles. *J Anim Sci* 2020;98:1-9.

3. Quilliam C, Ren Y, Morris T, Ai, Y, Weber LP. The effect of 7 days of feeding pulse-based diets on digestibility, glycemic response and taurine levels in domestic dogs. *Front Vet Sci* 2021: <https://doi.org/10.3389/fvets.2021.654223>.
4. Reis LG, Morris T, Quilliam C, et al. The effect of fermentation of high- or low-tannin fava bean on glucose tolerance, body weight, cardiovascular function, and blood parameters in dogs after 7 days of feeding: Comparison with commercial diets with normal vs. high protein. *Front Vet Sci* 2021: <https://doi.org/10.3389/fvets.2021.653771>.

FDA Alerts/Updates:

- United States Food and Drug Administration. FDA investigating potential connections between diet and cases of canine heart disease. July 12, 2018.
- United States Food and Drug Administration. FDA investigation into potential link between certain diets and canine dilated cardiomyopathy – February 2019 update.
5. United States Food and Drug Administration. FDA investigation into potential link between certain diets and canine dilated cardiomyopathy. June 27, 2019.
6. United States Food and Drug Administration. December 23, 2022: FDA does not intend to release further public updates until there is meaningful new scientific information to share. <https://www.fda.gov/animal-veterinary/outbreaks-and-advisories/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy>.

Conferences:

1. Solomon S. Opening remarks and Jones J, Carey L, Palmer LA. FDA update on dilated cardiomyopathy. Scientific Forum Exploring Causes of Dilated Cardiomyopathy in Dogs, Kansas State Veterinary Diagnostic Laboratory, Manhattan, KS. September 29, 2020.

Appendix B

Pain Management in Veteran and Double Digit Deerhounds (D3)

The pain management suggestions below were offered in response to postings on Facebook (personal pages and 'Scottish Deerhound', February 2021) after Amy Opoka with her 11 year 8 month old male "Belhaven" and Verena von Eichborn with her 12 year, 8 month old female "Hermione", sought suggestions for the best way to manage increasing old age pains. Compiled and researched by Barb Heidenreich and reviewed by Betty Stephenson, DVM and Dr. Mary Ann Rose (February 22, 2021).

As our Deerhounds age, many become weak, wobbly, and/or painful in the rear end. Signs are rear end pain and reduced mobility of the limbs, reluctance to move head and neck, lameness and "shuffling," knuckling over, foot dragging, and muscle wasting. Some may be affected by osteoarthritis (OA) and/or lumbosacral stenosis (LS), a narrowing of the last part of the spinal canal, which causes compression of the nerve roots. As dogs age, they can develop Intervertebral Disc Disease (IVDD), when the cartilage between spinal discs begins to wear down. It's a normal part of the aging process. There is difficulty in diagnosing OA, LS, IVDD...beware of a diagnosis of "hip dysplasia (HD)"... Deerhound and Greyhound hips are rarely affected by HD. Not only can LS be difficult to "nail down," the other problem is that oral medications such as Rimadyl, EtoGesic (Etodolac), glucosamine, aspirin, prednisone, etc. given for pain relief do little for LS since it is not arthritis, but rather, "doggy sciatica" i.e., pinching of the nerve roots. The "cure" is referral spinal surgery to free up the trapped nerve roots, not something most owners would consider in a geriatric Deerhound. Treating osteoarthritis in dogs provides a lot of options and we look at solutions offered below in categories including physical assistance, diet-nutrition-joint supplements and pharmaceutical pain-modifying drugs.

Here is a compilation of the answers received in alphabetical, not efficacy ordering:

- A. Physical assistance** - "holistic" approaches/common nonpharmacological therapies for LS & OA and old age pain:
- Acupuncture (<https://www.ahvma.org/> has a database of vets around the country (monthly as needed).
 - "Back on Track" dog products <https://backontrackproducts.com/product-category/dogs/> can be used to warm up your dogs' muscles before exercise, thus reducing the risk of strains or injury. They are advertised as having the dual capacity to prevent injury as well as ease and expedite the recovery of already present injuries.
 - Chiropractic (monthly-as needed)...necessary for neck pain so common in Deerhounds throughout their entire lifespan due to their violent athleticism....
 - Elastic leg band on the hind feet ("travel/ sea bands") that give clear input into the nervous system.
 - Osteopathy: is a drug-free, non-invasive manual therapy that aims to improve health across all body systems by manipulating and strengthening the musculoskeletal framework, not just the injured or affected part. An osteopathic physician will focus on the joints, muscles, and spine.
 - Pulsed Electromagnetic Field (PEMF), Transcutaneous
 - Electrical Nerve Stimulation (TENS) and Photobiomodulation (Infrared light; Cold Laser & High Powered Therapy) are three of the most common non-drug pain relief technologies:



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(a) Pulsed Electromagnetic Field (PEMF) therapy is used at precise frequencies to restore the cell's efficiency. Instead of simply masking pain like other pain relief therapies, PEMF works at the cellular level to accelerate the body's ability to repair injured cells with no side effects and that in turn, relieves pain. Like red-light therapy, magnetic field therapy- different frequencies but the same actions- also acts at the tissue locally, but goes deeper, right through the body completely. High-frequency waves like red light do not go as deep into the body because the wavelengths are so short. Because they're so short, they tend to get absorbed to some extent by the tissue. Now again, they're going to have indirect effects because they act on the meridian systems of the body and other reflex systems. PEMFs do all of that and they go completely through the body so they can act at depth if you have the right intensity of magnetic field (see: Bemer Therapy; Assisi's patented targeted Pulsed Electromagnetic Field (tPEMF™)).

b) TENS therapy - Transcutaneous Electrical Nerve Stimulation therapy involves the use of low-voltage electric currents. Electrodes are placed on the body at the site of the pain to deliver electricity that travels through the nerve fibers in order to block the pain receptors from being sent to the brain. Although TENS provides short-term pain relief, it only masks the symptoms of pain rather than working at the source of pain to relieve it, as PEMF does.

c) Infra-red light therapy; cold laser and high powered laser therapy (needs eye protection!): assists in healing muscle pain and OA. The LED pad devices deliver safe, concentrated wavelengths of natural light to skin and cells, which stimulate those cells to reduce oxidative stress and encourage the body to make more usable energy to power itself. This in turn increases function, speeds healing and reduces inflammation and pain. This therapy is certainly beneficial and typically penetrates the body within an inch of the surface of the skin and is intended



Cozy by the fireplace.

primarily for local application (see Gospel <https://equinelighttherapy.com/welcome-equine-canine-light-therapy>). Light energy from a laser therapy is a similar way to reduce pain and inflammation, accelerate healing in damaged tissues, relax muscles, and stimulate nerve regeneration. There are two classes of lasers being used in physical therapy: Class 3 lasers are less than 500 milliwatts (mw) in power while class 4 lasers are greater than 500 mw. Class 3 lasers are sometimes referred to as cold lasers, and the therapy may be called LLLT for low-level laser therapy. Class 4 laser therapy is sometimes called HPLT for high-power laser therapy.

B. Diet and Nutrition and Joint supplements:

These natural supplements generally seem to have the ability to decrease the inflammation, and stop the killing of all the good cells. Used for centuries by the Chinese and Europeans, Americans are starting to see the value of these remedies.

B.1. Ingredients:

- **Arnica** ...found in a homeopathic analgesic called Traumeel® which has not been evaluated by the FDA for safety and efficacy. Ingredients of injectable Traumeel include: Arnica montana, radix (mountain arnica), Calendula officinalis (marigold), Milefolium (milfoil), Chamomilla (chamomile), Bellis perennis (daisy), Echinacea (narrow-leaf coneflower), Echinacea purpurea (purple coneflower). A 2021 Feb 4 research paper (see Footnote #1) has found it actually reduced the efficacy of other treatments.
- **Bone broth:** The amino acids found in bone broth, including glycine and arginine, have strong anti-inflammatory effects. Arginine, in particular, may be especially beneficial for fighting chronic inflammation. Connective tissue gives you glucosamine and chondroitin, natural compounds found in cartilage that are known to support joint health.
- **Boron** plays a major role in calcium metabolism and integration, and may help, but only when the arthritis was caused by a boron deficiency.
- **Boswellia serrata**, an effective anti-inflammatory that is an oleo gum-resin, plant exudate from the tree of genus *Boswellia* (Family: Burseraceae).
- **Cannabidiol (CBD):** may be of value to help support the treatment of osteoarthritis, but the research isn't conclusive. "...currently not approved for therapeutic usage for animals," said Gail Golab, chief veterinary officer for the American Veterinary Medical Association. Treatment claims made by the products are just those- claims- because there is limited research behind them... although that is beginning to change.
- **Green lipped mussel:** while fish oil contains two kinds of omega-3 fatty acids – Eicosapentaenoic Acid (EPA) and Docosahexaenoic Acid (DHA) – the green-lipped mussel also contains a third called Eicosatetraenoic Acid (ETA). While all omega-3 fatty acids have the ability to reduce inflammation by blocking the enzymes (lipoxygenase and cyclooxygenase) that contribute to it, ETA is a rare form that goes one step further: it actually works at the gene level to lower the production of cyclooxygenase. This means less inflammation, less pain, and more mobility for your dog.
- **Glucosamine, MSM, Chondroitin, Vitamin C:** the case for these supplements protecting joint health or preventing arthritis is weak. People need to be a little careful with Vitamin C. It has been proven in humans that people using supplemental vitamin C have a higher risk of calcium oxalate kidney stones (use of vitamin C increases oxalate secretion by 20%) so even though it may help with joint pain, it is risky for other reasons. It doesn't prevent cancer either--prospective studies of patients considered to be at high risk for lung cancer actually showed an INCREASE in cancer when given the typical antioxidant vitamins A, C and E.
- **Hawthorn:** Joint pain caused by arthritis may be alleviated by use of hawthorn because the herb helps the body stabilize collagen, the protein found in joints that is destroyed by inflammatory diseases. Hawthorn also increases circulation, which helps rid the body of toxins that can build up in the joints. A caution: Hawthorn can interact with many prescription drugs used to treat heart disease... giving hawthorn along with medication for high blood pressure might cause blood pressure to drop. Safety has not been established in those with severe liver, heart or kidney disease. As with any herb or medication, if you're considering hawthorn for your dog, speak to your veterinarian first.

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- **Marrow** provides vitamin A, vitamin K2, minerals like zinc, iron, boron, manganese, and selenium, as well as omega-3 and omega-6 fatty acids which may help joint pain.
- **Omega-3 Fatty Acids:** several randomized placebo-controlled blinded studies and one systematic review have demonstrated the efficacy of diets rich in Omega 3 fatty acids and Eicosapentaenoic acid (EPA) for dogs with osteoarthritis (OA).
- **Raw Wild Salmon...** contain a long-chain of omega-3 fatty acids EPA and DHA all of which reduce inflammation.
- **Turmeric** in the form of “Golden Paste” contains curcumin, a powerful anti-inflammatory <https://www.turmericlife.com.au/pages/dogs>
- **Yucca:** can be very useful toward reducing inflammation of the knees and hips, especially when the herb is used concurrently with liquid extracts of licorice root (*Glycyrrhiza* spp.), alfalfa, and a liquid glucosamine supplement. Part of this may be attributable to the improved assimilation of glucosamine, another possible attribute of yucca’s saponin constituents. ... before you use it read this! : https://www.whole-dog-journal.com/care/non_traditional_healing/yucca-root-for-canine-arthritis-pain/



Falcon 12.5 years (Ch. Kyleakin Gyrfalcon, CD).

B.2. Pharmaceutical mixtures of natural supplements specifically for dogs:

- **Boswellia serrata:** helps support joint health and function and often mixed with Bromelain, an enzyme from pineapple, along with Turmeric and White Willow Extract.
- **Chondroprotex®, Glycoflex, Synovi-G:** glucosamine joint supplement overdoses typically only cause diarrhea; however, in rare cases, liver failure can develop.
- **Myristin® (EHP Products Myristin Canine 240 Count Joint Formula):** glucosamine/chondroitin/MSM/Vit C (best when combined) as an alternative to NSAIDs; not FDA reviewed or approved... needs 1- 2 months to show effectiveness. Ingredients: Cetyl Myristoleate Complex 500my (supplying molecular Cetyl Myristoleate 100 mg); Glucosamine Sulfate 300 mg (as glucosamine sulfate (2KCL)); Methylsulfonylmethane (MSM) 250 mg; Vitamin C 150 mg; Lecithin 100 mg; Bromelain 2400 GDU 18 mg; Manganese citrate 10 mg (elemental manganese 2.9 mg); Curcumin 6 mg; Lipase 120,000 U/G 4.3 mg.
- **Vets Best Aches and Pains:** <http://vetsbest.com/dog-wellness-grooming/supplements/aches-pains-dog-supplements> Ingredients: glucosamine HCL 250 mg (from shellfish), Bromelain 250 mg, Methylsulfonylmethane (MSM) 100 mg, White Willow Bark (*Salix alba*) 50 mg (standardized to 15% salicin), Yucca (*shidigera*) 20 mg Inactive ingredients: calcium carbonate, liver (defatted pork), magnesium stearate, natural flavorings, rice powder and yeast (*torula*). Contains no flour, fat, colorings, or preservatives.

C. Pharmacologic Therapy Options: Drugs Used as Pain Medication.

A bit of trivia to note: the word ‘pharmacology’ is derived from the Greek φάρμακον, pharmakon, and -λογία, -logia, “study of.” Strangely φάρμακον meant “poison” in classic Greek but came to mean “drug” in the modern language.

C.1. Not an Opiate/Narcotic and not an NSAID...actually an antiseizure medicine:

- **Gabapentin:** no clinical studies evaluating gabapentin—as a single agent or an adjunct to NSAIDs—for the treatment of OA have been conducted in humans, dogs, or cats. However, a neuropharmacologic rationale exists for gabapentin’s ability to diminish central and peripheral sensitization, which is supported by a number of rodent studies. Gabapentin is an antiseizure medicine and has significant sedating effects but it has been used in human trials for osteoarthritis of the knee and it has been very useful in human patients suffering from peripheral neuropathy from chemotherapy. There's no reason to actually think it might help with osteoarthritis since it's most useful in NERVE pain, but it might help for degenerative disc disease. <https://pubmed.ncbi.nlm.nih.gov/31062253/>

C.2. Opioid:

- **Tramadol** (opioid): no studies have been published that demonstrate tramadol’s efficacy for treatment of osteoarthritis, either alone or as an adjunct to NSAIDs. The pharmacokinetics of oral tramadol do not favor its use for OA pain in dogs. In fact, the pharmacokinetics of oral tramadol are not favorable in the dog, in general, and especially not for chronic use (plasma levels, low to begin with, diminish rapidly to near negligible levels after sequential use over several days).



Ch. Fernhill’s Electra at Fitzhugh, FCh. at 11.5 years.

C.3. Nonsteroidal Anti-inflammatory Drugs (NSAID), Non-narcotic analgesic and Corticosteroids:

(Do not give your dog ibuprofen or acetaminophen out of your medicine cabinet).

Inflammation is the body’s response to irritation or injury. After a cell is damaged, an enzyme called cyclooxygenase (COX) is activated. (An enzyme is a protein made by the body that speeds up a chemical reaction.)



Ghost, 13 years (Ch. Pennant’s Ghost).



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COX then stimulates the cell to produce substances called prostaglandins, which contribute to signs of inflammation such as pain, redness, warmth, swelling, and fever. NSAIDs (except for Galliprant) affect prostaglandins, either by blocking COX so fewer prostaglandins are produced or by blocking some activity of certain prostaglandins. The result is less pain and inflammation....but also in Deerhounds... ALL DOGS, and people for that matter, sometimes death. Because all NSAIDs interfere with the other positive functions of prostaglandins, they ALL can cause side effects, some of which are serious, even death. For all NSAID's it is recommended to monitor the liver and kidney values on a regular basis.

FOOTNOTE #1: New research: João Alves; Patrícia Jorge; Ana Santos “Comparison of two mesotherapy protocols in the management of back pain in police working dogs: a retrospective study” Topics in Companion Animal Medicine, Available online 4 February 2021, 100519 Test group of dogs with back pain was treated with a solution comprising a combination of lidocaine, dexamethasone, and tiocolchicoside; and the other group treated with the same solution, with the addition of Traumeel. The protocol used in the first group produced significant improvements, while the addition of Traumeel did not, rather reducing the effect of treatment in working dogs with back pain. <https://doi.org/10.1016/j.tcam.2021.100519>



Hermione 12 years 7 months (Ceridven of Canadagh Caoimlan).

FOOTNOTE #2 : Karie A. Johnson DVM; Anne H. Lee MS and Kelly S. Swanson PhD. “Nutrition and nutraceuticals in the changing management of osteoarthritis for dogs and cats”. Journal of the American Veterinary Medical Association June 15, 2020, Vol. 256, No. 12, Pages 1335-1341 <https://avmajournals.avma.org/doi/full/10.2460/javma.256.12.1335>



Appendix C

LONGEVITY in Deerhounds! ~ Barbara Heidenreich ("Fernhill") March 23, 2023

Recently (March 6, 2023) on all the Deerhound Facebook groups there was a posting by a Deerhound owner (not breeder) from the Netherlands that was an "URGENT CALL" lamenting the early deaths and the health issues in the breed. The solution proposed was outcrossing to "save" the breed. This "quick fix" I find is naive and not the route to go if you love this breed, its incredible temperament and its unique beauty. There is, however, plenty that we can do as breeders and owners that will increase health and longevity in Deerhounds and the suggestions offered below are for help in getting your Deerhound to 'Double-Digit Deerhound (D3)' status.

Breeder Decisions affecting Longevity: Certain practices that have been extensively researched and found to dramatically reduce or increase longevity in all dogs, not just Deerhounds, include:

Ø **Genes:** avoid breeding with individuals that have relations that die young from hereditary health issues (DCM, osteo, cystinuria) or breeding individuals with anxious temperaments as that leads to bloat (GDV). Research is required into longevity of the siblings and the ancestors of those individuals that may be bred. As highlighted by Dr. Jerold S. Bell, D.V.M. (2018) "It is the lack of selection for genetic health in either large or small population breeds that allows the propagation of genetic disorders."

Ø **Test for hereditary/health issues:** genetic testing (Factor VII; Delayed Post-operative Hemorrhage DEPOH) and heart, cystinuria and liver shunt tests enable breeders to make more informed breeding decisions. Testing increases knowledge of the genetic makeup of your dog and that knowledge should be used to maintain gene diversity, and should not result in limiting it. "When a good quality dog is found to carry a testable defective gene there is a better option than removing that dog from your breeding program. That option is to breed it so that you can keep its good qualities in the gene pool and then replace it in your program with a normal testing dog." (J.S. Bell, DVM). Clearly the way to do that is to plan a mating that does not double up on the testable defective gene...do your pedigree research on all the key breed health issues, testable or not.

Ø **Breed late so the health tests are meaningful ... AND your male has longer telomeres.** From by Gayle Watkins PhD: Research on the length of telomeres (Fick et.al.2012. <http://dx.doi.org/10.1016/j.celrep.2012.11.021>) a cap at the end of each strand of DNA that protects our chromosomes, has been directly linked to canine lifespan. "It has been shown that dogs with longer telomeres have a longer lifespans. Older stud dogs have longer telomeres and will give longer telomeres to their offspring. If breeders aren't aware, they are likely to breed young stud dogs as they're more fertile and tend to breed more easily. However, if we continue to breed younger, we are going to slowly begin to shorten the lifespan of our dogs. This is a subtle, but definitely important factor to consider. Not every breed has to worry about longevity, but a lot of breeds do... So the way I'm using this is trying to select bitches with the best longevity I can find along the bottom line of the pedigree and breed them to the oldest semen I can find. That might be a collection from a 5-yo male or even a 4-yo. I'd like to use older but may not have it"(personal correspondence March 21, 2023).



Ø **Your litter's COI (inbreeding coefficient):** Breeding closely related animals increases the expression of genetic disorders caused by recessive mutations, and it also increases the probability of producing offspring that will inherit the assortment of genes responsible for a polygenic disorder. Online pedigree data bases now allow breeders to check a COI on a proposed breeding up to 10 generations...go low, especially if you have no reputable data on health and longevity of the ancestors and avoid the FUS (frequently used sire).

Ø **Choosing for size:** It is generally the largest puppy in a litter that catches the 'breeders' eye...they get kept, shown and bred from. The breed gradually over time has increased significantly in size....the show ring rewards "big", it always has. The FCI Deerhound Standard now gives the Deerhound height minimum as 30" which the original breed Standard drafters wanted to cap as the maximum breed height as it was the functional male height. There is a direct relationship between size and longevity. Pick the best from the litter, not the biggest. ...stop breeding the biggest to the biggest and longevity will increase in Deerhounds. See <https://www.ncbi.nlm.nih.gov/pubmed/23535614> ...my own experience mirrors this. My "double digit" Deerhounds have all been 31" at the shoulder or less. My 14 year old males were both 30" at the shoulder.

Ø **Near term fetal irradiation:** The practice by breeders to x-ray pregnant bitches in order to count litter size prior to birth can reduce life expectancy of the puppies. Irradiation in both the fetal and neonatal periods is associated with increased early onset and lifetime cancer risk (Benjamin, 1988, 1991, 1998). Specifically, there is a sharp increase in both benign and especially fatal malignant, neoplasms in young dogs (less than 4 years of age), and in fatal cancers in very young dogs (less than two years of age) and in aging dogs...specifically dramatic increase in lymphoid neoplasia, hemangiosarcoma and malignant lymphoma. I have found no recent studies on the impact of perinatal radiation of dogs using modern equipment and lower dosages that indicates any radiation to fetuses is safe. As Gayle Watkins, Ph.D. ("How Badly Do We Need To Know?" 2015) has advocated: "shouldn't we demand proof that fetal x-rays are safe before we casually expose our pups to them? Doing research to confirm the safety of prenatal x-rays in dogs would not be difficult. Isn't it worth knowing? Isn't this especially important since we know that it takes years for the effects of low-level irradiation to begin to show?"

Owner Decisions affecting longevity:

Ø **Early spay and neutering:** it is well known that early neutering in the large breeds (prior to the age of 3 - 4 years in Deerhounds) precipitates life threatening health issues (Laura J. Sanborn 2007. Long-Term Health Risks and Benefits Associated with Spay /Neuter in Dogs. May 14, 2007) particularly increased risk from osteosarcoma and hemangiosarcoma.



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Ø **Over-vaccination:** breeders should not be vaccinating puppies at less than 8 weeks of age and owners need to recognize their dogs' immune systems are not fully mature until after 6 months. A booster at a year, but after that annual boosters for parvo and distemper are unnecessary as they subject the pet to potential risks of allergic reactions and immune-mediated hemolytic anemia. Check out the latest vaccination protocols or titer checks recommended by qualified experts who follow the research on vaccination protocols as it unfolds. Space the shots out, don't give all (rabies, DHL, Pi, parvo) all at once.

Ø **Over-vetting:** Try not to run off to the veterinarian for every little thing that happens to your Deerhound. The more you worry and show up at the veterinarian's office, the more likely that invasive tests will be performed which may do more harm than good. Use common sense. An anesthetic for a dental cleaning is an unnecessary risk... It was striking the number of the respondents to a 2007 longevity survey conducted on D3 (double digit Deerhounds) (Claymore May-June 2007 pp.15-18) that commented on not "over vetting" their dogs and letting them live a "natural life". Clearly the dogs were not neglected, but neither were they rushed to the vet for every snuffle or skin tear. A "wait and see" approach seems to have been developed by many owners in caring for their pet.

Diet Recommendations:

Ø Do NOT feed only dry kibble. Dry/kibble pet foods remain the leading style of pet foods linked to DCM. Dry kibble is also directly linked to gastric dilatation volvulus (GDV/"bloat") another leading cause of death in Deerhounds.

Ø As Deerhounds are a "large" breed and yours may be genetically predisposed to not processing taurine efficiently, ensure that your dog is getting plenty of taurine by adding to each meal raw meats high in taurine and sources of the amino acid precursors, methionine and cysteine (raw dark turkey, chicken, muscle meats - including tongue and heart and seafood).

Ø Do not cook the proteins you are feeding your dog as cooking destroys the amino acids needed to make taurine.

Ø As your Deerhound ages, again ensure that it is getting raw meat high in taurine and consider the addition of daily taurine-L-carnitine-CoQ10 supplements. Supplemental taurine-L-carnitine-CoQ10 usually comes in capsules of 500 or 1000 mg. (and is very safe even at extremely high doses) and can be given at up to 1000 mg per day for every 40 pounds of the dog's body weight. It also has very little taste and is easy to give.

Ø Dogs require two types of essential fatty acids: omega-3 and omega-6. Essential fatty acids have important roles in cell membranes, the immune system, and the circulatory system. In other words, they are essential for life. Current recommendations for pets suggest an Omega-3 to Omega-6 ratio of approximately 10 (Omega 3):1(Omega 6) to 5:1 be provided daily (250 mg). Among the various diseases potentially alleviated by these acids are allergies and autoimmune conditions, heart disease, joint problems, coat and skin problems, central nervous system disorders, as well as many cancers.



LONGEVITY in Deerhounds! ~ Barbara Heidenreich ("Fernhill") March 23, 2023

Ø Exercise: exercise, exercise, throughout their lives. This is a breed where self-motivation to exercise declines rapidly as they age. Don't let them turn into couch potatoes if you want them to live to D3 status! Many owners I have interviewed on longevity felt that "change", "youngsters" and "walkies" stimulated their older dogs and this exercise and stimulation assisted in their enjoyment of life and thus their will to live. For many double-digit Deerhounds it is usually the rear muscling that gives out first and quality of life deteriorates rapidly when assistance is needed to get up, down, walk and urinate. Can a (horse) chiropractor help through regular adjustments as the muscles weaken? Try it! Daily exercise seems to be a key to longevity, not only keeping your dogs muscled and fit, but we now know that activity assists dogs in synthesizing the taurine they need for maintaining healthy hearts.

Ø Risk Management: This doesn't mean closeting your Deerhound in your backyard for its lifespan, it simply means being conscious of risks such as cars, avoiding environmental toxins such as lawn/park herbicides, chemical toilet bowl cleaners, antifreeze, rat poisons, plastics, treated wood, tennis balls, products with xylitol and mycotoxins in food. Anticipate and prevent and remember that teaching your dog to jump obstacles for fun isn't much fun when you have to re-fence your property.

Ø Pain Management: As Deerhound age their aches and pains increase. A Deerhound's ability to tolerate pain is well known and should be recognised and addressed, preferably by using non-pharmaceutical solutions.

Ø Luck: Many owners of old dogs recognize that a certain amount of "luck" is involved in owning a double-digit Deerhound. Those with Scottish ancestors know this includes: no lilac or peacock feathers in the house; your Hogmanay/New Year's "first footer" (first foot in the house after midnight) must be dark-haired, male and carry symbolic pieces of coal, shortbread, salt, black bun and a wee dram of whisky; clothing put on inside-out has to be changed outside the house; don't look at the new moon through glass; on the first day of every month before you speak you have to say "rabbits" to bring you luck for that month...maybe Deerhound owners should scream "Red deer!!"? There needs to be a rowan tree outside your house as it helps keep witches away. Touch iron if you see or even hear evil and of course, a sprig of white heather is a must. You have been warned...!



Resting after "walkies", Fernhill.



Luck of the Deerhounds. Fernhill Sunset, 2022.



Conclusion:

More than one long-term breeder-owner has observed that Deerhounds have a small black cloud hovering over their heads. Captain George A. Graham wrote in 1879 in his chapter about Deerhounds for Vero Shaw's *The Illustrated Book of the Dog* observed: "The Deerhound is justly considered a difficult dog to rear....They also are not a long-lived dog." There does seem to be a very large element of luck in owning a double-digit Deerhound...perhaps. But, many factors affecting longevity are within the control of Deerhound breeders and owners. As Maryann Yuran (a Deerhound owner with extraordinary success in her dogs reaching old age) has observed: ".....eight hounds that I have raised lived from 10 ½ to 14 ¾ years. These Deerhounds (two bitches and six dogs) came from seven different breeders; two were father and son. Only one dog was 32 inches at the shoulder, the longest-lived male was 30 ½ inches at the shoulder; the bitches were 28 ½ inches and 30 inches, respectively. Temperaments were even and pleasant, no worried or stressed hounds. There were never any issues among the dogs when a bitch was in season. All were kept at proper weights, teeth were brushed (before it was fashionable, using baking soda) and scaled weekly as needed; toenails clipped & filed weekly; and they were brushed daily. They were fed a quality dry food, with vegetables (usually green beans, sometime carrots, to add bulk but not calories), and a dollop of yogurt added. Treats were given whenever I had to leave the house and always at bedtime. High quality (no additives) canned meat was also added. The dogs had regular veterinary care and lived in the house, being let out as they wished for free play, running together, or just lazing and enjoying the day. The most important thing that I believed contributed to their longevity was regular exercise with me, usually keeping them at a trot, morning and evening, weather permitting. As long as they were able to keep moving, they stayed healthy and happy".

As his beloved Maida's life was nearing its end (a deerhound cross that lived to age 11), Sir Walter Scott describes in a letter dated April 24, 1822 to Miss Edgeworth (Maria Edgeworth was an Irish novelist) regret that she could not see Maida "*on whom age now sits so heavily*", and offers this perspective on longevity:

'I have sometimes thought of the final cause of dogs having such short lives, and I am quite satisfied it is in compassion to the human race; for, if we suffer so much in losing a dog after an acquaintance of ten or twelve years, what would it be if they were to live double that time?'



2018 National Specialty Veteran Sweepstakes: Bitch class 9+ years (Photo: Susan Ily)
GCH Sindar Tillicum (11 yr) ... DC Justso Tiene Tay Berry (9 yr) DC Windmoor Suncatcher (13 yr)



Their Future is Our Responsibility.

Bibliography

There are a limited number of books available on Deerhounds and a lot of misinformation on the internet on this breed. The misinformation covers the myth about only royalty being able to own Deerhounds and describes them as “gentle giants”.

For a quick realistic take on this breed check out Michele Welton “*Scottish Deerhound - What’s Good About ‘Em; What’s Bad About ‘Em*”
www.yourpurebredpuppy.com/reviews/scottishdeerhounds.htm

Have a look as well at:
www.fernhill.com/about-deerhounds/deerhound-character

Listed below are a few reference books that can still be found:

Bell, Weston.
The Scottish Deerhound. 1892
(Reprinted by Hoflin Publishing Inc., 4401 Sephyr St., Wheat Ridge, Colorado, U.S.A. 80003)

Benbow, A.
How To Raise and Train A Scottish Deerhound . Neptune City, N.J.: T.F.H.Publications, 1965, 1993

Cassels, Kenneth.
A Most Perfect Creature of Heaven: The Scottish Deerhound. K.A.H.Cassels, 1997

Crealock, Lt.-General Henry Hope.
Deerstalking in the Highlands of Scotland. London: Longmans & Green, 1892

Cunliffe, J.
Deerhound.
Dorking, Surrey, U.K.: Interpet Publishing, 2002

Cupples, George.
Scotch Deerhounds and their Masters. Edinburgh: William Blackwood, 1894
(Reprinted in 1978 by Hoflin Publishing Inc.)

Recommended website reference to give your vet:
Sheerer, K.N., et al. (2013) “Haematological and biochemical values in North American Scottish Deerhounds” *Journal of Small Animal Practice* (July 2013)54: 354-360. <https://onlinelibrary.wiley.com/doi/abs/10.1111/jsap.12086>

Hartley, A.N.

The Deerhound. 1986

(Available from the *Scottish Deerhound Club of America and the Deerhound Club* (U.K.)

The Scottish Deerhound Annual. Volumes were issued in 1980, 1981, 1982 and are available from Hoffin Publishing Inc.

Scrope, William.

The Art of Deerstalking.

London: John Murray, Albermarle Street, 1839

Not a specific Deerhound reference, this book is a valuable resource for all sighthound owners:

Blythe, L.L., Gannon, J.R., Craig, A.M.

Care of the Racing Greyhound ~ A Guide for Trainers,

Breeders and Veterinarians. Oregon: American

Greyhound Council Inc., USA, 1994

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From *The Art of Deerstalking* by William Scrope, 1839

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Sir Edwin Landseer R.A., c. 1839

Courtesy of Tate Britain, London U.K.

CONTACT US

Barbara Heidenreich
Fern Hill
180 Second Line, South Monaghan
Bailieboro, Ontario
Canada
K0L 1B0
T: 705.939.6831
E: bh@fernhill.com
W: www.fernhill.com



Back cover
Fernhill's Kendra
Photo by Linda Lindt

Design: James Forrester (2012)
Megan Greenwood (2023)

Review: Shamon Neill (2023)



Photo Credit and our love: Verena von Eichborn



Nelungaloo Fair Dinkum at 11½ years of age • Owned by Heidi Groebli • Photo by Barbara Wickli

Your Scottish Deerhound Primer

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