

What is DEPOH?

Delayed Post-operative Hemorrhage (DEPOH), sometimes also called Delayed Bleeding Syndrome or hyperfibrinolysis, occurs when a dog has one or two copies of a variant form of a gene that is involved in preventing blood clots from dissolving until after a wound has healed. This condition occurs in different breeds and crossbreeds but in almost all sighthounds. Including **Azawakh, Barzoi, Deerhound, Galgo Espanol, Greyhound, Irish Wolfhound, Italian Sighthound, Magyar Agar, Saluki** and **Whippet**. The mutation has not yet been found in the **Chart Polski** and **Sloughi** because only less than 5 specimens of each breed have been studied. So it cannot be said whether they carry the mutation or not. In the 36 **Afghan Hounds** that have been examined, the mutation has not been found but it could be present although it is rare. The disease can affect dogs of either sex.

When a blood clot forms to stop a wound from bleeding, the clot normally is dissolved after the wound heals. A normal DEPOH gene contains instructions for making a protein that prevents blood clots from dissolving. But the protein made by the variant form of the gene does not work as efficiently as that made by the normal form of the gene. As a result, blood clots in sighthounds with DEPOH can dissolve prematurely after major surgery or trauma. Problems, including severe skin bruising and bleeding from the wound, are typically first noticed one or two days after surgery or injury but have been seen as early as right after surgery.

The variant causing DEPOH is inherited as a dominant gene with incomplete penetrance, so dogs are either clear (no copies of the mutation) or affected (having one or two copies of the gene). Current research shows that, compared to a clear dog, a dog with one copy of the DEPOH variant is 28 times more likely to experience delayed bleeding, while a dog with two copies is 1235 times more likely to experience delayed bleeding.

Dogs that have one or two copies of the DEPOH variant have no problems day-to-day and lead normal lives, but they have a higher risk of bleeding after surgery or trauma. For reasons not yet understood, affected dogs (especially dogs with only one copy of the DEPOH variant) can undergo surgery without experiencing delayed bleeding problems. But if delayed bleeding does occur, it can be fatal, particularly if it isn't caught soon after it starts.

Most bleeding starts within 24–48 hours after surgery, although there are cases where it starts earlier. There is no way to predict how an individual DEPOH-affected dog will react during or after major surgery. Bleeding can be prevented and/or treated with administration of aminocaproic acid (also known by its brand name, Amicar) or tranexamic acid. One of these drugs should be given prophylactically to dogs with two copies of the DEPOH variant (homozygous affected dogs) beginning the day of surgery at least three hours prior to the procedure and then three times daily for five days. For dogs with one copy of the DEPOH variant (heterozygous affected) or dogs whose genetic status is unknown, closely monitoring the dog for 48 hours after surgery/injury, having the drug on hand, and giving it if signs of haemorrhage develop will usually be effective. Owners who choose to monitor should make sure the hospital has 24-hour coverage and some aminocaproic or tranexamic acid on hand if the dog is staying overnight. Please note: most veterinary clinics do not stock either of these two medications, so owners of dogs with one or two copies of the DEPOH mutation or whose dogs' DEPOH status isn't known are encouraged to keep an up-to-date supply.

Dogs that have a bleeding episode post-operatively or after major trauma should be treated immediately with either aminocaproic acid or tranexamic acid, the first dose given IV slowly, if possible (if not, give the drug orally), and subsequent doses given every 8 hours orally if the dog can take meds that way. Treatment usually continues for five days.

There is now a genetic test for DEPOH available at Washington State University*. (Currently Washington State University is the only lab running the test for all breeds.) Clear dogs will not need aminocaproic acid or tranexamic acid post-operatively, but dogs with one copy of the DEPOH mutation will need one of those medications on hand and given if needed, and dogs with two copies of the DEPOH mutation need to be given one of the medications the day of and for five days after surgery.

All sighthound owners should know the DEPOH status of their dogs and responsible breeders tell puppy buyers in writing whether or not their puppy is affected based on either test results or knowledge of the parents' DEPOH status.

For breeders, the goal should be to never produce an affected individual. A DEPOH-clear sighthound (no copies of the mutation) can be bred to mates of any DEPOH status. A sighthound that has one or two copies of the DEPOH mutation should be bred only to a mate that is DEPOH-clear. Remember, a genetic test should not alter WHO gets bred, only WHO the dog gets BRED TO. It is only through using all of the bloodlines we have that we'll be able to maximize the effectiveness of the tests and improve the health of our breed, so no dog or line should be eliminated from breeding because of DEPOH genetic status, especially in light of our shrinking gene pool.

A new genetic test is extremely exciting news for us, but PLEASE remember that this is a treatable and preventable problem: what this test is going to tell us is which dogs are at risk of post-operative bleeding and need treatment with aminocaproic acid or tranexamic acid. We are NOT saying that dogs should be removed from the gene pool because they have this mutation. OUR GENE POOL CANNOT AFFORD TO BE REDUCED ANY MORE. So please: although everyone's first instinct is to remove dogs with a potentially harmful mutation from breeding programs, we need to change our thinking to just take DEPOH status into account when planning breedings and to inform puppy buyers of their puppy's DEPOH status.

The important thing is every sighthound owner should know the DEPOH status of their dogs so proper precautions can be taken for affected dogs should surgery be needed or trauma occurs.