



LIVERSHUNT TESTING GUIDE & FORMS & DNA STORAGE PROGRAMME FORMS.

Livershunt (aka Portosystemic shunt) the term used to describe the presence of an abnormal blood vessel linking the hepatic portal vein, which drains blood from the small intestine, and the inferior vena cava, one of the major veins of the body. In the normal animal the hepatic portal vein leads from the intestine to the liver, and the blood does not enter the main circulation until it has passed through the liver. The effect of a shunt is to by-pass the liver so that the blood enters the main circulation without having been processed by the liver. This abnormality can occur in any breed of any species as a one-off non-inherited problem, but the Irish Wolfhound is one of the breeds of dog in which it occurs as an inherited disorder.

In the normal animal bile acids are excreted by the liver into the bile and so into the small intestine to aid the digestion of fats. They are then reabsorbed by the portal vein and passed straight back to the liver to begin the cycle all over again, without ever entering the main circulation. When a shunt is present, large quantities of bile acids are deposited in the main circulation immediately after a meal. The most specific test for a portocaval shunt is therefore to measure bile acids.

It is possible to test puppies between the ages of 6 – 12 weeks to see if they are affected with this condition.

Irish Wolfhounds breeders have been testing for this condition since the early 1990's and have a long standing arrangement with **Idexx** (formerly Vetlab) who carry out these tests at a **reduced rate of £7.05 + VAT per puppy for a single Bile Acid** Test. The submission form for blood samples to be sent to **Idexx** is on page two of this document.

Arrangements in advance of the test need to be made with your veterinary surgeon as puppies either need to go to the surgery for the test or the vet needs to come to your home. Make sure your vet has the submission forms in advance.

Single Bile Acid Test.

This is done using a single post feeding blood sample. Puppies are fasted overnight and then fed their usual breakfast meal. Between 90 – 120 minutes after feeding the blood sample is taken.

It is vital that your puppies are clearly identified with a marker pen, i.e. Dog1, Dog2, Bitch1, Bitch2 etc. and each blood sample is clearly matched to the correct puppy.

Make sure that every puppy eats well, even with an observer from the Vet practice; you will know best what is a usual amount for your pups to eat.

Splitting pups into small groups is best as it is easier to watch puppies eat and note the amounts. A normal meal is all that's required; it can be made more appetising with milk if needed.

Ask your vet to give their practice fax number or email address to **Idexx** so the results can be sent straight through to the surgery. Usually results are available within 24 - 48 hours of the samples being received by **Idexx**.

A normal result from a single sample proves conclusively that the puppy does not have a shunt. Individual Certificates for clear puppies are issued upon request to **Idexx**.

If the result is abnormal, the puppy needs re-testing approximately a week later. Please ask your vet to do the double test – see below. This saves a lot of time and Idexx do not always remind vets to do this. In the meantime, it is recommended that the puppy be placed on a diet designed for the support of liver function and this can be recommended by your veterinary surgeon, this will help with symptoms if the puppy is affected. Even if the puppy is showing no symptoms it is still beneficial to feed a supportive diet until the results of a re-test are available, as onset of symptoms can be sudden. If the puppy already shows clear signs of illness and surgery is an option, then request a referral to a specialist practise as soon as possible where an ultrasound scan will determine the presence or not of a shunt; in the meantime your veterinary surgeon can prescribe antibiotics and lactulose that will help alleviate symptoms while waiting for a referral. For enquiries regarding surgery contact Carolyn Burton Email: CAB@vetspecialists.co.uk

The Double Bile Acid Test – only required if the first sample is suspected as abnormal. Please use the same testing forms for re-tests.

Puppies are fasted overnight and the first blood sample taken on an empty stomach.

Then a normal meal is given.

120 minutes later (or as near to it as possible) the second blood sample is taken.

All samples must be clearly matched to the puppy they came from.

A substantial increase between the two samples is absolutely diagnostic of a shunt, and cannot be caused by any other condition.

If you encounter any difficulties please feel free to call me and I will help in any way I can. We are collecting data again to ascertain the level of affected puppies so would appreciate your letting us know if your litter tests clear, or if there is an affected puppy.

Jean Timmins - Email: jean@cornovi-iw.co.uk

Animal Health Trust DNA Storage Program

Taking bloods for Livershunt testing is the ideal time to contribute samples to the DNA storage program which provides samples for health research such as our current Osteosarcoma Study at the Animal Health Trust. If you are happy to do this, simply ask your vet to take spare bloods from each puppy for submission to the AHT. The instructions and paperwork that needs to accompany these samples are on pages 3 and 4 below.

Portosystemic Shunt Screen Submission Form

IDEXX

Grange House
Sandbeck Way, Wetherby LS22 7DN
Tel: 01937 544 000

Vet. Surg.....	Owner's Name
Practice.....	Details of litter
Address.....	Breed.....
.....	Name of dam
.....	Date of birth.....
Tel. No.	Date of sampling
Fax. No.....	Date sent
Please indicate if this is a re-test <input type="checkbox"/>	Date of last Test

Puppies should be identified to the satisfaction of the veterinary surgeon, so that each result can be matched up with the correct individual. Sample tubes must be clearly labeled to correspond with the identifications listed.

Puppy identification.

1.....dog/bitch	9..... dog/bitch
2.....dog/bitch	10..... dog/bitch
3.....dog/bitch	11..... dog/bitch
4.....dog/bitch	12..... dog/bitch
5.....dog/bitch	13..... dog/bitch
6.....dog/bitch	14..... dog/bitch
7.....dog/bitch	15..... dog/bitch
8.....dog/bitch	16..... dog/bitch

Sample requirement is 1.5 ml clotted blood from each puppy, collected 90 – 120 minutes after feeding. Please use either glass specimen bottles or gel tubes designed for whole blood. Plastic vials or centrifuge tubes are not suitable. If possible, samples should be separated in the practice and sent as serum.

The test is invalid if the puppies have not eaten a reasonable-sized meal before testing. It is therefore essential for certification purposes that the feeding is witnessed by a practice representative, who should sign the declaration below to confirm that this has been done.

I confirm that I witnessed these puppies being fed approximately 1 ½ to 2 hours before the blood samples were collected, and that each puppy area a reasonable amount.

Signed.....Print Name

Position in practice.....

Note to Veterinary Surgeon: If an affected puppy is identified, please consider giving a cheek swab from the puppy, plus its sire and dam (where possible), to the Research Program seeking a genetic test for this condition. Swab kits can be obtained from jean.timmins@btconnect.com and sent directly to the client.

The attached forms (pages 3&4) relate to a DNA blood storage program and require an additional 1ml of blood to be taken with the client's permission and the form completed with the details of each puppy and sent in with the blood samples as directed.



SAMPLE SUBMISSION FORM FOR IRISH WOLFHOUND DNA STORAGE PROGRAM



The Irish Wolfhound Health Group is working in partnership with the Animal Health Trust (AHT) to enable research into conditions affecting the breed. The AHT has agreed to store blood samples in order to provide DNA required for such research. We would urge breeders/owners to submit blood samples from their hounds in order that we may all benefit from this in the future.

1. The Purpose of the repository will be to provide DNA samples for research into health conditions affecting Irish Wolfhounds.
2. Owners submit samples in the knowledge that it is future members of the breed that are likely to benefit from any research arising and not the dogs from whom they are submitting samples.
3. DNA samples become the property of the AHT with the proviso that use of the DNA samples and clinical data has to be kept within margins of research programs into canine health issues.
4. If other research bodies require access to the DNA Samples, then the aims of the research must be put to the Health Group for their agreement for such access to be given.
5. The data derived from the use of the DNA samples in research is to be used for the benefit of dogs and not commercial organisations seeking to use the information for other purposes.
6. All information will be confidential.

If your dog is undergoing any investigation that involves a blood sample, for example Livershunt testing puppies - ask your vet to keep any surplus blood for submission to the DNA Storage Program.

Place the surplus blood into an EDTA tube and label with the following information:

- Label each sample accurately with the registered name of the puppy/adult. (If this is unknown at the time in respect of puppies, put the ID for the puppy and advise of the registered name as soon as this is known)
- Whether dog or bitch.
- Date of Birth.
- Date the sample was taken.

IT IS VITAL THAT THE SAMPLES ARE LABELLED CORRECTLY.

Please enclose (For Litter Submissions)

- 1 ml surplus blood sample per puppy (in an EDTA tube clearly identified with the puppy name).
- One copy of the pedigree.
- One copy of the Livershunt submission form with each puppy detailed on it.
- KC registered names for each puppy. (If not known these must be submitted to the AHT as soon as possible).
- The **SAMPLE SUBMISSION FORM** overleaf/attached completed in full (page 4)

Note for Breeders

- Please place a copy of the **FOLLOWUP INFORMATION SUBMISSION FORM** (page 5) with Section 1 completed with details of the puppy and place the form with the puppy pack to be given to new owners.
- Please ensure that the new owners are aware of the need to supply follow up information and ask their permission for a contact phone number or email to be passed on to the AHT and that they may be contacted annually by the AHT.
- Please pass on a contact email address or phone number for each new owner to Victoria Polfold-wilkie at the Animal Health Trust - oncologyres@aht.org.uk

The above information is necessary for the sample to be used for research purposes. It is also important to inform the AHT of any significant health changes that occur after the sample has been submitted.

Samples must be returned as soon as possible after being taken, via first class mail, to ensure the quality of the samples on arrival at the AHT.

Queries regarding form completion can be directed to jean.timmins@btconnect.com



LITTER SUBMISSION FORM IRISH WOLFHOUND DNA STORAGE PROGRAM



Breeder :	Tel:	E-mail :
Address		

Attached is sample submission form relating to the litter listed below signed by the breeder named above in whose ownership the puppies were in at the time the samples were taken.

Sample Submission Form Attached <input checked="" type="checkbox"/>	Pedigree Attached <input checked="" type="checkbox"/>	Litter Birth Date:
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Sire	Dam
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Please enter the KC Registered names of the Puppies. The name under which each puppy was tested for Livershunt, and the name address and contact details for each new owner. Send the original form with the blood samples to the address at the bottom of this form, and please email a copy of the form to Jean Timmins jean.timmins@btconnect.com for inclusion on the DNA database.

	KC Registered Name	Test Name	New Owners Contact Details
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Note to Breeder: Please inform all new owners that their puppy has been included in the study and they may be contacted by the AHT at a later date for information on their dog's health, and if the dog should have any illness or die, could they complete and return the Follow-up Form – a copy of which needs to be included in the puppy pack and given to the new owners. Queries regarding form completion can be directed to jean.timmins@btconnect.com

Signed:(Breeder).....(Dated)

PLEASE COMPLETE THE FORM IN BLOCK LETTERS AND RETURN TOGETHER WITH THE BLOOD SAMPLES TO:
Victoria Polfold-wilkie, Animal Health Trust, Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU, UK
Email: oncologyres@aht.org.uk



FOLLOW-UP INFORMATION SUBMISSION FORM
IRISH WOLFHOUND DNA STORAGE PROGRAM



Health status update of Irish Wolfhounds with blood stored at the AHT for future research.

PLEASE COMPLETE THE FOLLOWING IN BLOCK LETTERS AND RETURN TO:
Victoria Polfold-wilkie, Animal Health Trust, Lanwades Park, Kentford, Newmarket, Suffolk, CB8 7UU, UK
Email: oncologyres@aht.org.uk

Section 1

Litter ID name of puppy (from Livershunt testing)
K.C. Registered Name of Dog/Bitch
K.C. Registration Number
Sex
Date of Birth

Section 2

Name and Address of Owner:

Email Contact: Tel No.

Name of Disease

Date of Diagnosis

Any Other Information or Comments

(If you do not have enough space please continue on a separate sheet)

IF THERE HAVE NOT BEEN ANY SIGNIFICANT HEALTH CHANGES PLEASE TICK BOX

If you have not already done so, please include copies of a 5 generation pedigree and any relevant laboratory or referral reports.

Please note, send only copies of documentation, as originals cannot be returned