

## **Dachshund radiographic certification to prevent IVDD in South Africa**

We are pleased with your interest in the South African breeding program to prevent intervertebral disc disease (severe disc degeneration with herniation, IVDD). We believe that that the program is a tool that over time will be able to reduce the number of Dachshunds affected by IVDD and follows a similar program run in Denmark and several other countries. The incidence of IVDD in the dachshund is about 15 to 20%.

### **Scientific background:**

According to a PhD study on the topic by Dr Vibeke Frøkjær Jensen (VFJ) in Denmark the following was found:

- The number of intervertebral disc calcifications have a high degree of heritability (0.64-0.89)
- Calcified discs reach their peak when the dog is between two and three years old. After three years the calcified discs become denser, but part of the calcifications begin to disappear most likely in relation to rupture of the disc.
- Radiographic evaluation for the number of calcified discs should be done between the ages of 24-42 months.
- The radiographic evaluation will be a useful tool in the selection of breeding animals
- The risk of disc herniation is closely associated with the number of calcified discs at two years, with a 60% risk of disc herniation in dogs with more than 5 calcified discs.

The dogs must be taken to a veterinarian for the radiographs to be taken. Any veterinary practice that deems itself competent to make the required images can be used with the proviso that the radiographic images (x-rays) must be in digital format. Digital images enhance the ability to detect calcified discs. As in the European countries there will only be one evaluator to maintain consistency in interpreting readings. This will be Prof Robert Kirberger, a European and South African recognised specialist radiologist with a special interest in spinal pathology ([www.vetimagingspecialists.co.za](http://www.vetimagingspecialists.co.za)). All results of official certifications will be entered into the official pedigrees of the dogs by KUSA, as is presently done with hip and elbow dysplasia grading, using the letters IVDD and a number, i.e. IVDD3 will mean that the dog has been radiographed and found to have 3 calcifications.

### **Program outline:**

- All dogs must have a microchip number.
- The owner signs a declaration form certifying the dog's particulars before the radiographs are taken.
- The veterinarian takes the radiographs but is not allowed to tell the dog owner anything about the result. The radiographs are sent to Prof Kirberger.
- The owner pays all fees to the veterinarian

- The results of the radiological evaluation are sent to the owner via the veterinarian as well as to a person designated by all the Dachshund clubs who will distribute the results to the clubs to be published in their magazines or on their web site. The results are also sent to KUSA to record on the official pedigree
- The program is voluntary and breeders/owners make an appointment with the Onderstepoort Veterinary Academic Hospital of the University of Pretoria or their own vet for the x-ray examination.
- It is not known at this stage what the extent of the problem is in the breed varieties. At the moment there is no enforced breeding regulations but all results will be evaluated in 2015 after which breeding regulations may be enforced.
- It is important to publish the results since there is no breeding restriction. If the results were not published it would be possible to use dogs with severe genetic disposition for IVDD (many calcified discs) without anyone knowing it. Thus, it is an important tool for the breeder looking for new breeding material.

As a guide for breeders the following recommendations are applicable:

- All dachshunds should undergo a x-ray examination between 24-42 months of age before they are used for breeding.
- Dogs with 0, 1 or 2 calcifications are recommended for breeding.
- Dogs with 3 or 4 calcifications should only be used for restricted breeding (2 litters at the most) and the mate should have 0 or 1 calcified discs.
- The above should make it possible to exclude 25 % of the dogs with the most calcifications and thus markedly reduce the incidence of IVDD.
- Dogs with 5 or more calcifications should preferably not be used for breeding. If the dog is used it must only be bred once and to a dog with 0 or 1 calcification. If this is impossible then breed to a dog with a much lower score. In this way breeding lines will not be lost and genetic diversity will be maintained. However, breeders must proceed with caution and aim to reduce the calcifications in each successive generation. Transparency must be maintained at all costs.

#### **Literature:**

1. Jensen VF, Beck S, Christensen KA, Arnbjerg J. Quantification of the association between intervertebral disk calcification and disk herniation in Dachshunds. J Am Vet Med Assoc. 2008 Oct 1;233(7):1090-5.
2. Jensen VF, Arnbjerg J. Development of intervertebral disk calcification in the dachshund: a prospective longitudinal radiographic study. J Am Anim Hosp Assoc. 2001 May-Jun;37(3):274-82.
3. Jensen VF. Asymptomatic radiographic disappearance of calcified intervertebral disc material in the Dachshund. Vet Radiol Ultrasound. 2001 Mar-Apr;42(2):141- 8.
4. Jensen VF, Christensen KA. Inheritance of disc calcification in the dachshund. J Vet Med A Physiol Pathol Clin Med. 2000 Aug;47(6):331-40.
5. Jensen VF, Ersbøll AK. Mechanical factors affecting the occurrence of intervertebral disc calcification in the dachshund--a population study. J Vet Med A Physiol Pathol Clin Med. 2000 Jun;47(5):283-96. Erratum in: J Vet Med A Physiol Pathol Clin Med 2000 Nov;47(9):575.
6. [http://dachshealth.tripod.com/european\\_and\\_american\\_studies\\_of.htm](http://dachshealth.tripod.com/european_and_american_studies_of.htm) (for information only as some suggestions are not in our program)



KUSA



Miniature Dachshund Club  
of the Rand



Teckel Club



The SA Dachshund Club

## **Intervertebral disc calcification scheme** **Application for certification**

### **Owners declaration**

Registered name of dog

Breed

Sex

Date of birth

**NB** Copy of registration certificate to be attached to application

Name of owner

Tel

Address

I declare that:

- 1 the particulars stated above are correct and are of the dog submitted today for radiographic examination
- 2 the dog has not been previously radiographed for certification
- 3 I understand that the radiographs are the property of the veterinarian making them and will be retained by him for 3 years
- 4 I understand that the results will be forwarded to the relevant breed society and KUSA which may publish the results and place them on the registration certificate
- 5 I understand that results may be used anonymously for research purposes

Owner's signature

Date

### **Veterinarians declaration**

Name

Tel

Practice name

Address

I declare that:

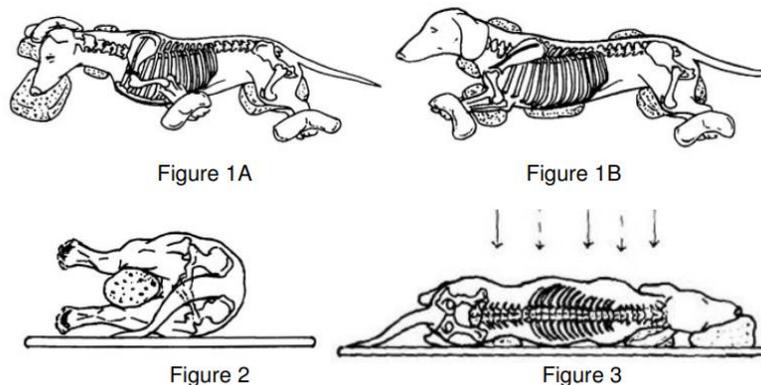
- 1 The microchip number has been verified for the above dog and is  
.....
- 2 The radiographs were made on .....
- 3 The following general anaesthetic or sedation was used .....
- 4 I have read and applied the guidelines for making the applicable vertebral radiographs for disc calcification certification

Veterinarian's signature

Date

## Veterinary guidelines for spinal radiographic certification of Dachshunds

1. Spinal examination is done from 24-42 months of age.
2. All examined dogs must be identified by means of a microchip number.
3. Only digital images will be accepted.
4. All radiographic images must at least be identified by microchip number, dog's registered name and date of examination by being **recorded on the digital image** for permanent and accurate identification.
5. Images must be of a satisfactory quality (correct exposure). A grid is compulsory and the views must be collimated to the affected region to minimize scatter.
6. Views: The x-ray examination covers the entire vertebral column of the dog. The dog gets sedated (e.g. Domitor and can be reversed with Antiseden after the radiographs) to avoid motion. The examination consists of five latero-lateral radiographs of the vertebral column of the dog while it is positioned in right recumbency. The views are as follows:
  - a. Cervical region C2-C7 and centre at C4 with thoracic limb pulled back (Fig. 1A).
  - b. Cervicothoracic region C7-T4 and centre to T2 with thoracic limb pulled forward (Fig. 1B).
  - c. Central thoracic region T3-T10 and centre at T7 with thoracic limb pulled forward (Fig. 1B).
  - d. Thoracolumbar region T10-L2 and centre at T13.
  - e. Lumbar region L1-S2 and centre at L4.
7. It is of vital importance that the radiographs are correctly exposed and positioned. The spine must be absolutely parallel to the table and for this, sponges are required below the cervical and lumbar vertebra and between the thoracic and pelvic limbs and below the dependant limb (Figs. 2 & 3).



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8. Radiographs that do not qualify under the above points will be returned to the veterinarian with a comment as to the reason for returning the films. An administrative fee will be charged for this.
9. The veterinarian is not allowed to tell the dog owner anything about the result. The signed (owner and veterinarian) declaration form as well as a copy of the dog's registration certificate is forwarded by the veterinarian with the appropriate fee to Prof Kirberger ([www.vetimagingspecialists.co.za](http://www.vetimagingspecialists.co.za)).
10. Results are sent back to the veterinarian who forwards them to the owner. The owner must contact the submitting veterinarian and not Prof Kirberger for results. There is no appeal process.
11. Copies or amendments to certificates will carry an extra fee.
12. Please note that the radiographs remain the property of the practice which made them and have to be kept by that practice for 3 years.

