

British Veterinary Association/Kennel Club Elbow Dysplasia Scheme – Procedure Notes

These procedure notes are intended to explain the above Scheme and to provide helpful instruction to those using the Scheme. They are due to be effective from 1 January 2017 and replace all previous documents in relation to the Scheme. These notes may be modified from time to time; please consult the [BVA website](#) for the latest version.

Introduction

Elbow dysplasia (ED) is a common multifactorial condition manifesting as a variety of developmental disorders of the canine elbow and leading to osteoarthritis of the elbow joint(s). The disease has a strong genetic component and therefore screening of dogs' elbows by radiography and grading the changes will help breeders to select the most suitable dogs for breeding. For the Scheme to be meaningful and successful it is important that images from EVERY dog radiographed be submitted for grading, whether or not the animal is required for breeding and whatever the state of the elbows, in order to provide the widest possible information for use by a geneticist and for generation of estimated breeding values (EBVs). Further information about elbow dysplasia and the use of the grading scheme is available in the Canine Health Schemes section of the [BVA website](#).

1. The scheme

The main purposes of the scheme are the examination of radiographs of elbows of dogs for signs of any primary lesion(s) and/or osteoarthritis caused by the conditions which are collectively termed 'elbow dysplasia', and the issue of a certificate in respect of that examination. The scheme is open to all dogs and is not restricted to those which are registered with the Kennel Club. The examination is conducted by the evaluation of radiographic changes indicative of ED and a grade for each elbow joint is recorded; the overall grade is that given to the elbow with the higher grade. It is strongly recommended that breeders wishing to reduce the risk of ED in progeny should select their breeding stock (both dogs and bitches) from animals with an overall elbow grade of 0 as well as giving consideration to the ED grades of related animals. Dogs with elbow grades of 2 or 3 have marked osteoarthritis likely to be due to ED, and/or a visible primary lesion. Dogs with elbow grades of 1 show mild or early osteoarthritis which is also likely to be due to ED. Lameness is not a good indicator of elbow status and many dogs with ED do not show signs of lameness (i.e. they are affected subclinically). Dogs with subclinical ED are more likely to produce clinically affected (lame) progeny than are dogs with normal elbows.

The ED Scheme does not cover any other hereditary or clinical defects which may need to be considered when choosing suitable breeding stock. However, breeders wishing to have their dogs

graded for hip dysplasia as well as elbow dysplasia may have the hips and elbows radiographed at the same time and the submissions sent together. In such cases these procedure notes will have to be read in conjunction with those for the BVA/Kennel Club Hip Dysplasia (HD) Scheme (details available from [BVA website](#)).

2. Breed specific statistics

The Breed Specific Statistics give the percentages of each overall ED grade in the breeds most commonly graded and therefore give an overview of the ED status of the dogs graded in that breed. The Breed Specific Statistics are available on the BVA and Kennel Club websites and allow the veterinary surgeon to advise his/her client about the dog's suitability for breeding.

3. Arranging for radiography and submission to the scheme

The dog's owner should approach his or her veterinary surgeon and request that elbow radiographs should be acquired and submitted for grading under the Scheme. It is possible to arrange for radiographs of more than one dog to be submitted on the same occasion. The following procedure should be observed:

- a) the minimum age of a dog for submission under the Scheme is one year. There is no upper age limit.
- b) the dog must be permanently identified by either microchip or tattoo.
- c) suitable arrangements must be made with the veterinary surgeon for both of the dog's elbows to be radiographed.
- d) the following documents must be made available at the time of radiography if it is registered with the Kennel Club (KC):
 - i. the KC Registration Certificate of the dog;
 - ii. any related transfer or change of name certificate.
- e) prior to radiography of the dog's elbows, the owner must complete and sign the first section of the certificate (the Owner's Declaration) verifying that the details given in that section relate to the dog being submitted, that the details are correct and granting permission for the results to be used in the ways specified. The certificates are provided by BVA.

NB Once a certificate of ED grading has been issued for a dog, the dog's radiographs may not be resubmitted for grading under the Scheme other than via an Appeal (see section 7).

4. Procedure for radiography of the Elbows

The following views of each elbow joint are required for grading under the Scheme:

Two mediolateral views, which must be:

- (i) with the elbow in an extended position of about 110°;

- (ii) with the elbow in a flexed position of about 45°. The veterinary surgeon should radiograph the dog's elbows as indicated below.

4.1 Protection of Personnel

The Guidance Notes for the Safe Use of Ionising Radiations in Veterinary Practice (1999), which are based on the Ionising Radiations Regulations 1999, explain that only in EXCEPTIONAL circumstances should dogs be manually restrained for radiography. Since the radiography of dogs for the purposes of this Scheme would not constitute exceptional circumstances:

- a) it is NECESSARY to employ general anaesthesia, narcosis or deep sedation to enable only mechanical (i.e. nonmanual) restraint for the positioning of the animal;
- b) collimation of the primary beam should be clearly visible on the radiograph.
- c) the X-ray beam must be projected vertically downwards, perpendicular to the table top.

4.2 Positioning

Standard positions for radiography must be employed. Accordingly for both left and right elbow joints:

- a) the dog should be placed on its side with the elbow to be radiographed closer to the table; the upper limb should be secured with a tie and retracted caudally and dorsally so as not to overlay the joint being radiographed.
- b) a cassette without a grid should be placed beneath the elbow being radiographed and a left or right marker used as appropriate.
- c) for the extended mediolateral view the thoracic limb should be extended and supported underneath the carpus and foot, if necessary, so that it is parallel to the table top. The angle between the humerus and antebrachium should be 110°.
- d) for the flexed mediolateral view, the dog should be positioned in the same way but with the elbow flexed so that the angle between the humerus and the antebrachium is 45°. Overflexion may cause rotation of the joint.
- e) the centring point for both views, by palpation, should be the condyle of the humerus; the X-ray beam should be collimated to include approximately the distal 1/3 of the humerus and the proximal 1/3 of the antebrachium. The dog should be turned over and the procedure repeated for the other elbow joint.
- f) To obtain correct positioning, please refer to the “how to” positioning videos on the [BVA YouTube channel](#).
- g)

NB Radiographs which are not correctly positioned may be rejected, and appropriately-positioned radiographs requested.

4.3 Markers and identification

The following information **MUST** be included on digital images or, in the case of radiographic film, radiographed onto the film at the time of exposure or added by light marker before processing:

- a) BOTH
 - i) the Kennel Club Registration Number (from the top right hand corner of the KC Registration Certificate) for dogs registered with the KC (**no other form of identification for KC registered dogs is acceptable**). For dogs not registered with the KC, identification as used by the veterinary practice, other registering body or breed club may be used. **AND**
 - ii) microchip or tattoo number
- b) the date of radiography
- c) left and/or right marker(s).

NB Radiographs which are not correctly identified will be returned to the submitting veterinary surgeon and an appropriately identified radiograph requested.

4.4 Image quality

Correct exposure is essential to provide a radiograph of good diagnostic quality. When radiographing a large or fat dog with either conventional or digital systems, it is usually necessary to use a grid to minimise the effects of scattered radiation on the image. The image should show good radiographic definition and contrast, and the dorsal acetabular edges (DAE) should be visible superimposed by the femoral heads. The radiograph should be checked for correct positioning, exposure and image quality while the dog is still restrained in case a further radiograph needs to be taken.

4.5 Digital images

Digital images may be submitted as DICOM files, one dog per disc. Images may also be printed from the original DICOM file and submitted as dry laser images or on high quality photographic paper. When submitted as hard copies the image must include a millimetre scale at the time of radiography and have a size variation of no more than 10% from the actual size of the dog.

4.6 Radiographs on X-ray film

Correct processing (developing, fixing and washing) is essential to produce a diagnostic radiograph. Incorrect exposure and processing can seriously interfere with the visibility of detail and so affect the radiological assessment of the hips. Extraneous marks from screen contamination, splashes, scratches etc. should be avoided.

NB Radiographs which are not of acceptable diagnostic quality to the scrutineers will be returned to the submitting veterinary surgeon together with an explanation of the reason for the rejection, and a radiograph of appropriate quality requested.

5. Submission and grading

The procedure for submission and grading under the Scheme is as follows:

- a) the veterinary surgeon sends the radiographs to BVA with the ED certificate, having signed the middle part (the Submitting Veterinary Surgeon's Certificate) to certify:
 - i) the details regarding the submission of the radiographs,
 - ii) the microchip or tattoo number once verified by ticking the box.

NB The veterinary surgeon should check that the breed, colour and sex of the dog correlate with those details in the Owner's Declaration and on the KC Registration Certificate. The veterinary surgeon should also check that the details on the KC Registration Certificate have been accurately and completely transposed by the owner onto the ED certificate i.e. the Kennel Club registered name, number, breed, sex and date of birth. Microchip labels may not be used on the certificate – the number must be written on.

- b) the current fee (see Schedule 2) must be included with the submission and cheques must be made payable to BVA. The BVA charge includes the scrutineers' fees but does not cover the cost of radiography.
- c) scrutineers appointed by BVA meet frequently to grade the radiographs. Two scrutineers agree the grade for each radiograph. The grading scheme is published on the BVA website.
- d) for each elbow joint a grade is derived by evaluation of the margins of the joints and the bone structure for signs of primary lesions and/or osteoarthritis of the elbow. Four grades are possible under the Scheme; the minimum grade for each elbow is 0 and the maximum is 3. The overall grade given for both elbows is the grade given to the elbow with the higher grade. The LOWER the grade the less the degree of ED evident on the radiograph.
- e) the grades are recorded in the Certificate of Grading section at the bottom of the certificate, which is signed by both scrutineers.
- f) for hard copies, the radiographs which have been graded have the initials "BVA" embossed onto them once. Any other radiographs which have been submitted for the same dog (but not graded) will be embossed twice with the BVA initials.

NB If there appear to be any inconsistencies or inaccuracies of completion or identification on the ED certificate the submission will be returned to the veterinary surgeon with relevant comments, prior to grading.

5.1 Reject radiographs

If a radiograph is rejected, hard copies will be embossed twice with the initials 'BVA' and returned to the submitting veterinary surgeon with any relevant comments, whilst discs of digital images will be retained. The fee will not be refunded and the certificate will not be completed. When a subsequent radiograph is submitted for that dog, it must be accompanied by a new certificate and a further fee (see Schedule 1).

6. Results

The results of grading are normally sent to the submitting veterinary surgeon within three weeks from receipt by BVA of the correct submission. The arrangements are as follows:

- a) the radiographs (when submitted on film), the completed original certificate (which is gold and is to be passed to the owner) and a photocopy of the certificate (to be kept by the veterinary surgeon) are returned to the submitting veterinary surgeon along with a copy of the procedure notes.
- b) the names of Kennel Club registered dogs graded under the Scheme, together with the results of the ED grade, will be sent to the Kennel Club for publication and inclusion on the relevant documents.
- c) relevant details may be sent to a geneticist for statistical analysis as arranged by BVA.

6.1 Requests for results

- a) Pending results:
 - i. an owner must contact the submitting veterinary surgeon, NOT BVA, for results issued under the Scheme;
 - ii. a veterinary surgeon may contact BVA on a client's behalf for results of grading but is asked to allow at least three weeks from the date of correct submission before doing so.
- b) Past results:
 - i. results for KC-registered dogs which have previously been published are available on the Kennel Club website;
 - ii. any results which have not been published should be sought directly from the owner(s) of the dog;
 - iii. a copy of a certificate may be issued by BVA only to the person(s) identified on the ED certificate as the owner(s) of the dog at the time of grading. Such requests should be made to BVA in writing and a fee will be charged (see Schedule 2).

7. Appeals procedure

An owner has a right to appeal with regard to the results of an ED grade. The procedure is as follows:

- a) any application for appeal against the result of an ED grade must be lodged by the owner with BVA in writing within 45 days from the date of dispatch from BVA.
- b) an appeal certificate (available to the submitting veterinary surgeon from BVA) must be completed in a similar way to the ED certificate and submitted together with the re-grading fee (See Schedule 2) and the original certificate against which the appeal is being made.
 - i. For digital radiographs, the original digital images are held by BVA so do not need to be resubmitted;
 - ii. For hard copies the same radiographs used for grading (i.e. the radiograph(s) embossed once with the initials "BVA") must be resubmitted by the veterinary surgeon to BVA.
- c) In the event of an appeal being lodged proof of posting will not constitute proof of receipt by BVA.
- d) The radiographs will be re-graded by a further pair of scrutineers and then by the Chief Scrutineer, whose decision will be final, and the new grade results will be relayed in the normal way. The original certificate against which the appeal was made will be retained by the BVA. NB the first result may already have been submitted to the KC for publication before the second result is received but in this case will be replaced by the final result.

Schedule 1

Charges as at 1 January 2018

The scale of fees as at 1 January 2018 is set out on the [BVA website](#). These charges do not include the cost of radiography and may be changed from time to time. Any changes will be notified by further communication.

NB Radiographs which are judged by the scrutineers as unsuitable cannot be scored. BVA will not refund submission fees for rejected radiographs

Schedule 2

BVA/KC Hip Dysplasia Scheme: Panel of Scrutineers as at 1 January 2018

The BVA appointed panel of scrutineers detailed below may be changed from time to time. Any changes will be notified by further communication.

Dr J V DAVIES BVetMed DVR MRCVS DipECVS DipECVDI (Chief Scrutineer)

Dr A ANDERSON BVetMed DSAS (Orth) FRCVS

Mrs E A BAINES MA VetMB DVR DipECVDI MRCVS

Mr D D CLARKE MA VetMB DVR CertSAC MRCVS

Mr D G CLAYTON JONES BVetMed DVR DSAO FRCVS

Dr R DENNIS MA VetMB DVR FRCVS DipECVDI

Dr C GIBBS BVSc DVR FRCVS DipECVDI

Prof M E HERRTAGE MA BVSc DVSc DVR DVD DSAM FRCVS DipECVDI Dip ECVIM

Mr J E F HOULTON, MA VetMB DVR DSAO MRCVS DipECVS

Mr B M TURNER BVSc (Massey) DVR CertSAO MRCV