

# WELSH SPRINGER SPANIEL JOINT HEALTH GROUP

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## DISEASES AFFECTING THE WELSH SPRINGER SPANIEL FACT SHEET 3 – GLAUCOMA

### WHAT IS GLAUCOMA?

Glaucoma is an increase in fluid inside the eye, which leads to damage to delicate structures within the eye which may eventually lead to blindness, following swelling of the eye. In its acute form glaucoma is painful, but in all types it is the effect on sight through destruction of the optic nerve that represents its most important feature. Two forms of glaucoma are considered to be inherited in the dog: open-angle glaucoma (very uncommon in the dog) and angle-closure glaucoma. The latter form is considered to be inherited in the Welsh Springer Spaniel. In angle-closure glaucoma Goniodysgenesis (characterized by non-differentiation of the pectinate ligament and a narrowed drainage angle) predisposes the patient to acute onset disease, usually in middle-age.

### WHAT TREATMENT IS AVAILABLE?

Treatment is often unrewarding but if the pressure can be kept within normal limits, the progression of the condition may be halted for considerable periods. Medical treatment, in the form of eye drops applied daily, is usually the first choice but surgical procedures are also available. These procedures are aimed at increasing the outflow of fluid from the eye, but there may be complications which require further surgery. Research continues into appropriate and successful methods of controlling this distressing condition.

### IS GLAUCOMA INHERITED?

There is some evidence to suggest dominant inheritance, from a paper by Doctor Keith Barnett, and Beverley Cottrell of 1988. The Joint Health Group initiated an investigation into the incidence of pre-disposition in the Welsh Springer Spaniel in 1996 and 100 to 150 dogs were tested by Doctors Keith Barnett, Ian Mason and Beverley Cottrell, the object being to ascertain information about the incidence of abnormal drainage angle anatomy in our breed. It is apparent that there is a breed incidence of glaucoma in the Welsh Springer Spaniel and this problem is linked to abnormal drainage angles formation. Work in other breeds has shown that abnormal drainage anatomy is inherited and that severe forms of abnormality predispose to glaucoma development.

### **CAN MY DOG BE TESTED FOR THIS CONDITION?**

Yes. Fortunately, the goniodysgenesis can be identified at an early age by gonioscopy, and as such predisposed animals can be screened out of breeding programmes. Contact should be made with an Eye Specialist, via your own Veterinary Surgeon in the first instance. A few drops of local anaesthetic are applied to the corneas of the eyes to be examined and then a special type of contact lens is applied to the eye, permitting examination of the drainage angle of the eye, with either an ophthalmoscope or a camera.

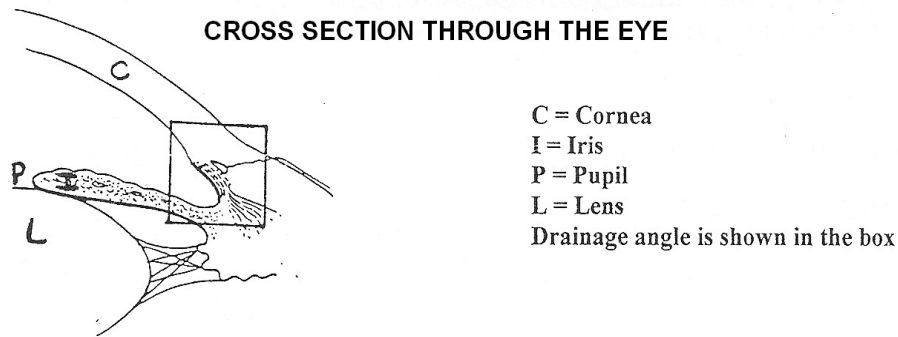
The problem facing breeders and eye panellists is that we cannot at the moment predict with any certainty what degree of Goniodysgenesis places a dog at significant risk of developing clinical disease. The eye test allows only two categories – pass or fail. An objective method of assessing the angle is difficult and has led to apparent inconsistencies. The object of the investigations under way is to arrive at a practical consistent method of diagnosis and to be able to give rational breeding advice.

To put this into perspective there are very few known cases of Glaucoma currently in the Welsh Springer Spaniel, and it is very easy to have your dog tested for the condition as early as 6 months of age, when, if the animal is found to be pre-disposed, a decision can be made not to breed from it, which may help to reduce the incidence of the condition in the breed. It should be pointed out here that the pre-disposition DOES NOT MEAN that your dog will develop Glaucoma, in fact it really is quite unlikely bearing in mind the numbers currently known in the breed. However, it is known that pre-disposed animals may pass the condition on to their pups. It should be pointed out that a pass DOES NOT MEAN your dog will NOT develop glaucoma.

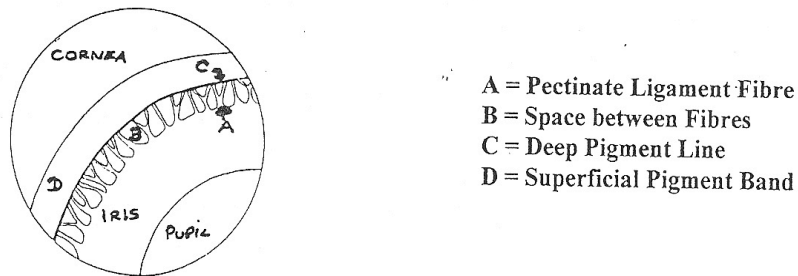
### **ANATOMY OF THE EYE AND THE DRAINAGE ANGLE**

The drainage angle (or iridocorneal angle) is formed by the iris and cornea. Aqueous (the fluid inside the eye) is produced at a constant rate, and in a healthy eye drains out through this angle into the veins around the eye. In the normal eye, production and drainage of fluid occur at the same rate, keeping a constant pressure inside the eye. In the dog, abnormality of the pectinate ligament (which spans the angle) can lead to impaired drainage. This leads to an increase in pressure, as aqueous continues to be formed at the same rate. This abnormality can be detected by looking at the drainage angle through a goniolens, and is termed goniodysgenesis.

(Beverley Cottrell 2010)



VIEW THROUGH A GONIOLENS



**Other fact sheets are produced by the WSS Joint Health Group.  
Contact the Secretary for further information.**

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