

Progressive Retinal Atrophy/Degeneration in Cats (PRA, PRD)

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Progressive retinal atrophy or degeneration (PRA or PRD) is the name for several diseases that are progressive and lead to blindness. First recognized at the beginning of the 20th century in Gordon Setters, this inherited condition has been documented in over 100 dog breeds, and mixed breed animals as well. PRA is not very common in cats, although the Abyssinian breed seems to have a predilection. In cats, a deficiency of the amino acid taurine can result in PRA. This is one reason why cat foods and some feline nutritional supplements contain taurine.

Anatomy of the eye

The eye is a very delicate, yet surprisingly durable organ. It consists of several layers. The cornea is a transparent layer that covers the front of the eye. The iris is the colored part of the eye and it is responsible for letting in more or less light. The lens gathers and 'bends' light in order to focus it on the retina. In between the cornea and lens is an area of fluid which bathes the lens and helps it focus. The retina lines the inside of the eye and converts light into signals which travel down the optic nerve to the brain. A large area between the lens and the retina contains a jelly-like fluid called 'vitreous.' The vitreous gives the eye its form and shape, provides nutrients, and removes waste products.



The retina

The retina is the structure affected in PRA. This important part of the eye receives the light gathered and focused by the other eye structures. It takes the light and essentially converts it into electrical nerve signals that the brain, via the optic nerve, interprets as vision. The retina contains photoreceptors, called rods and cones, which help the animal see in darkness (rods) and see certain colors (cones).

What is PRA?

Normally, the photoreceptors in the retinas develop after birth to about 8 weeks of age. In PRA in cats, the photoreceptors develop in the kittens, but as the cat ages, the receptors degenerate. Progressive rod-cone degeneration (PRCD) is the most common form of PRA in cats, and starts with night blindness and progresses to total blindness at 3 to 5 years of age. The late onset of clinical signs in PRCD is particularly devastating to breeding programs because cats may have already been bred prior to the onset of symptoms.

What are the signs of PRA?

PRA is non painful and outward appearance of the eye is often normal, i.e.; no redness, excess tearing, or squinting. Owners may notice a change in personality of their cat such as a reluctance to go down stairs or down a dark hallway. This is characteristic of night blindness, in which vision may appear to improve during the daytime. As the disease progresses, owners can observe a dilation of the pupils and the reflection of light from the back of the eye. If the blindness is progressing slowly, the owner may not notice any signs until the cat is in unfamiliar surroundings and the lack of vision is more apparent. In some animals, the lens of their eyes may become opaque or cloudy.

How is PRA diagnosed?



Depending on the form of PRA, characteristic changes in the retina and other parts of the eye may be observed through an ophthalmic examination by a veterinary ophthalmologist. More sophisticated tests such as electroretinography may also be used. Both tests are painless and the animal does not have to be anesthetized.

How is PRA treated?

Unfortunately, there is no treatment for PRA, nor a way to slow the progression of the disease. Animals with PRA usually become blind. Cats are remarkably adaptable to progressive blindness, and can often seem to perform normally in their customary environments. Evidence of the blindness is more pronounced if the furniture is rearranged or the animals are in

unfamiliar surroundings.

Can PRA be prevented?

PRA has been shown to have a genetic component. Kittens from parents who have no history of the disease have less risk of developing the disease. Affected animals should not be bred and should be spayed or neutered. The littermates or parents of animals with PRA should also not be bred. If your cat develops PRA, notify the breeder, if possible.

In the last several years, DNA testing is being used to identify which genes are responsible for PRA in dogs. Tests in cats are not yet available.