



Support Your Dog's Vision with Natural Astaxanthin.

In the wild, keen eyesight is essential for daily survival. Working and companion dogs need good eyesight to communicate, stay active, and live life to the fullest. The canine eye is adapted for excellent night vision, and depth perception that's controlled by muscles in the eye, and a crystal clear lens for focus. In the back of the eye, the retina transmits information from light passing through the lens to the optic nerve that processes images in the brain.

Between the ages of 8-10, eye conditions such as conjunctivitis, dry eye, cataracts, glaucoma, retinal degeneration, and cloudy lens (nuclear sclerosis) are more common. These conditions are most often the result of low endogenous antioxidant levels leading to the accumulation of reactive oxygen species (ROS), oxidative stress, and mitochondrial dysfunction. The ocular surface is affected by external sources of ROS triggered by UV, dry eye, and pollution. These environmental stressors are in addition to ROS produced as a byproduct of mitochondrial activity in the very metabolically active photoreceptors of the eye.

Filling the Antioxidant Gap in the Canine Diet.

Antioxidants can help fight back against rising free radical levels. In pet food, antioxidants can be used as a natural preservative to prolong the shelf life of the food. Alternatively, physiological antioxidants bring additional health benefits by scavenging free radicals and protecting cells of the companion animals enjoying the food. This becomes especially important as dogs age and their internal antioxidant capacity is diminished.

Antioxidants like vitamin C, vitamin E, lutein, zeaxanthin, and beta-carotene are some commonly known eye nutrients. Natural astaxanthin is an emerging eye nutrient with outstanding antioxidant power, anti-inflammatory properties, and targeted mitochondrial benefits for vision support.

Study Shows Natural Astaxanthin Can Help Maintain Vision in Aging Dogs.

Nuclear Sclerosis is common in aging dogs and appears as a bluish-grey haziness at the center of the eye caused by a hardening and thickening of the lens. Nuclear sclerosis is considered prevalent in 50% of dogs over nine years and 100% in dogs over thirteen years. Nuclear sclerosis can affect depth perception and near vision, but unlike cataracts, nuclear sclerosis does not cause blindness.

A study was conducted on 12 adult Beagles (ages 6-8 y.o., 8 males, 4 females), fed nutritionally complete and balanced canned food daily for a 1 month acclimation period followed by a 6 month study period. The treatment group received a daily antioxidant supplement blend (lutein 20 mg, zeaxanthin 5 mg, beta-carotene 20 mg, natural astaxanthin 5 mg, vitamin C 180 mg, and vitamin E 336 mg per day). Control dogs received food without added antioxidants.

Visual function was measured in the animals using non-invasive electroretinography (ERG), which measured the electrical activity in the retina that's generated in response to light. ERG amplitudes decrease with age in adults, most substantially in elderly populations. The ERG amplitudes in the treatment group increased significantly in both dark adapted (scotopic; $p < 0.05$) and light adapted (photopic; $p < 0.05$) conditions, while no increase was observed in the control group.

Different types of light stimuli can tease apart different aspects of retinal function. For example, Scotopic (dark adapted) conditions using standard (Ssd) or high intensity (Sh) light measure a mixture of both rod and cone function. Under Photopic (light adapted) conditions, the light stimulus may be presented as a

single flash (Pc) to measure cone function, or as a flicker (Pfl) to measure cone and rod function in the inner retina. The antioxidants tested in this study have a significant impact on retinal response as shown in Table 1 below ($p < 0.05$).

The thickening of the lens that characterizes nuclear sclerosis is also associated with increased nearsightedness, which can be measured as a change in refractive error. Over the course of the 6 month study, the change in refractive error in the control group (-0.56 D) was more than 4 times greater than in the treatment group (-0.13 D; $p < 0.05$). Suggesting that this antioxidant cocktail may slow down the myopic shift associated with nuclear sclerosis.

Table 1: Percent Changes in Retinal Function Post Treatment

Treatment Group	Dark adapted (scotopic)		Light adapted (photopic)	
	Ssd	Sh	Pc	Pfl
Antioxidants	+27.2%	+22.7%	+14.4%	+44.4%
Control	No change	-6%	-12%	-22.3%

Antioxidant supplementation improves retinal response compared to control group ($p < 0.05$)

Natural astaxanthin in combination relieves Dry Eye.

Dry eye disease is a result of decreased tear production or excessive tear evaporation. It is a common canine eye disease that is prevalent in ~64% of male cross breeds ages 6-9 years old in North America. Dry eye symptoms include: blurred vision, eye fatigue, eye redness, and light sensitivity.

A randomized, placebo-controlled study was conducted with 50 dogs (19 females, 31 males) of different breeds. Dogs were divided into 2 groups, in which 25 dogs were fed a standard control diet, and 25 dogs were fed an antioxidant mix. Kibble in the experimental group contained 60-80% hydrolyzed protein, 20-40% minerals and therapeutic substances, including natural astaxanthin.

Conjunctival inflammation was assessed on a scale of 0-3, from normal to severely bloodshot and swollen. The conjunctival inflammation score decreased by 72% only in the antioxidant group, dropping from 2.1 ± 0.1 to 0.6 ± 0.1 ($p < 0.0001$). Mucous discharge scores decreased from 1.8 ± 0.1 to 0.3 ± 0.1 ($p < 0.0001$) in the antioxidant group, but not in the control group. According to Schirmer's tear test-1 (STT-1), tear production more than doubled in the antioxidant group over 60 days, increasing from 4.7 ± 0.4 mm to 10.7 ± 0.6 mm ($p < 0.0001$), but not in the control group.

Natural Astaxanthin is Right for Your Keen-Eyed Dog.

Natural astaxanthin is the most powerful antioxidant known in nature, with a remarkable ability to cross the blood retinal barrier and reach the eye. It is clinically proven to support retinal function and stabilize refractive index in aging dogs. Natural astaxanthin is known to alleviate dry eye symptoms, reduce ocular inflammation, and increase tear production. AstaReal® Astaxanthin is the most clinically studied brand of astaxanthin, naturally derived from algae that is cultivated in state-of-the-art facility in Moses Lake, WA in the USA. Your best friend deserves the best nutrition and the best vision at any age with AstaReal® Astaxanthin.

References

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