**Genetic Testing**

**Why Test Your Jack Russell Terrier?**

If you are a breeder, prospective dog owner or someone looking for a highly trained dog for specific service work, hunting or the show ring, understanding your Jack Russell Terrier's genetic health will help you make better decisions concerning your dog. It is always best to test a dog before it is bred so that you are aware of any potential genetic disorders that it could pass to its offspring.

DNA tests for specific diseases remain the "gold standard" in determining an animal's genotype, but in the absence of available DNA tests, phenotypic evaluations are the best alternative. Information regarding the test results from the sire and dam, along with information on other close relatives such as siblings, half-siblings, aunts and uncles allows breeders to apply greater selective pressure to produce normal offspring and avoid affected offspring.

Source: Orthopedic Foundation for Animals

**Primary Lens Luxation (PLL) Testing - Ocular**

R

The lens of the eye normally lies immediately behind the iris and the pupil, and is suspended in place by a series of fibers, called zonular ligaments. It functions to focus light rays on the retina, in the back of the eye. When partial or complete breakdown of the zonular ligaments occurs, the lens may become partially dislocated (Lens Subluxation) or fully dislocated (Lens Luxation) from the lens' normal position. Lens Luxation can lead to inflammation (Uveitis) and Glaucoma (increased intraocular pressure). This can result in painful, teary, red eyes that may look hazy or cloudy. Both Uveitis and Glaucoma are painful and potentially blinding diseases if not identified and treated early. Tests results are: Normal, Carrier and At Risk. PLL testing requires a DNA sample.

Source: Canine Lens Luxation Basics

**Spinocerebellar Ataxia (SCA) Testing – Neurological**

The cerebellum is the part of the brain responsible for coordinating movements. Ataxia comes from a Greek term meaning "without order". When the cerebellum cannot coordinate movement, the dog can move, but the movement is poorly coordinated. They are not weak, in fact, often the movements a dog with ataxia makes are too strong. They have a goose-stepping gait and when excited or running, their legs may appear to be going every which-way. Sometimes they have problems with their balance and will fall frequently. Tests results are: Normal, Carrier and At Risk. SCA testing requires a DNA sample.

Source: College of Veterinary Medicine - University of Missouri-Columbia

**Degenerative Myelopathy (DM) Testing – Neurological**

Degenerative myelopathy (DM) is a progressive disease of the spinal cord in older dogs. It begins with a loss of coordination (ataxia) in the hind limbs. The affected dog will wobble when walking, knuckle over or drag the feet. This can first occur in one hind limb and then affect the other. As the disease progresses, the limbs become weak and the dog begins to buckle and has difficulty standing. The weakness gets progressively worse until the dog is unable to walk. Tests results are: Normal, Carrier and At Risk. DM testing requires a DNA sample.

**Canine Eye Registration Foundation (CERF)/Companion Animal Eye Registry (CAER) Testing - Ocular**

The Canine Eye Registration Foundation (CERF) was formed by breeders that were concerned about heritable eye diseases. The foundation worked with veterinary ophthalmologists to devise a yearly evaluation of breeding dogs, known as a CERF exam. The phenotypic appearance of each eye is evaluated during the exam and this does not imply that an ocular disorder will not subsequently develop. Therefore, dogs with phenotypically healthy eyes are cleared for one year of breeding, but there is no genotypic clearance. Breeding dogs may show phenotypic characteristics of an ocular disorder during a future CERF exam. CERF testing requires a physical exam. The major goal of a CERF exam is to stop breeding any dogs that display potentially blinding diseases including microphthalmia, cataracts, colobomas, progressive retinal atrophy, and retinal dysplasia. Breeding and potentially-breeding dogs are typically subject to a yearly CERF exam as the dog ages from about 4 months to 9 years. CERF has now been replaced by the Companion Animal Eye Registry (CAER) which is managed by OFA. CAER certifications will be performed by board certified (ACVO) veterinary ophthalmologists.

Source: Orthopedic Foundation for Animals

(CAER) - Vision

**Brainstem Auditory Evoked Response (BAER) Testing – Auditory** Evoked

The hearing test known as the brainstem auditory evoked response (BAER) or brainstem auditory evoked potential (BAEP) detects electrical activity in the cochlea and auditory pathways in the brain in much the same way that an antenna detects radio or TV signals or an EKG detects electrical activity of the heart. The response from an ear that is deaf is an essentially flat line. Each ear is tested individually, and the test usually is complete in 10-15 minutes. BAER testing requires a physical exam and a hearing test.

Source: Orthopedic Foundation for Animals