

## WHAT IS RENAL DYSPLASIA?

Renal Dysplasia is a defect of the kidneys. It is found most commonly in Shih Tzu, Soft Coated Wheaten Terriers and Lhasa Apsos.

The dog is born with relatively immature kidneys. This changes rapidly in the first six weeks of life. In many animals, immature nephrons (urine-forming units) exist until 6-10 weeks of age. But in this disease, these immature nephrons persist throughout life. Also, some nephron units do not develop and are replaced with fibrous tissue. Sometimes this fibrous tissue represents 20-50% of the kidney, and the kidneys are noticeably small and irregular.

Other evidence of RD includes diffuse interstitial fibrosis in the cortex and medula (which seems quite peculiar to this disease), reduced numbers of glomeruli (the filtering structure of the kidney where toxins, fluid and electrolytes are removed from the blood), dilated and hypoplastic tubules (through which the fluid or filtrate passes while being transformed into final urine), and a variety of sizes of glomeruli. Some glomeruli are 20-30% smaller than normal, some are normal size, and some are embryonic. While mineralization of tubules can be seen in any chronic renal disease, this mineralization is seen with JRD even in young animals that have only moderate uremia. Researchers believe that this mineralization is somehow an early component of this disease and is related to the abnormal development of the nephrons. Dogs with RD have had an embryonic arrest some time around birth. Hypertension does not seem to be part of this disease.

Affected dogs are characterized by the percentage of hypoplastic glomeruli:

Dogs with 1-2% hypoplastic glomeruli are *borderline*.

Dogs with 2-15% are *mild*.

Dogs with 15-25% are *moderate*.

Dogs with 25-35% are *moderately severe*.

Dogs with over 35% hypoplastic glomeruli are *severe*.

RD is poorly recognized because many animals are only slightly affected. They show no clinical signs, and the presence of the disease may fail to be detected by routine laboratory tests, including urinalysis, serum creatinine, BUN, radiographs of renal size, and ultrasound. Many moderately and slightly affected dogs will live normal life spans with apparently normal renal function and can pass on the disease to their offspring. Due to the nature of this disease it can go undetected for many generations or be ignored by knowledgeable breeders because only a small percentage of animals will die of renal failure. Without the development of more effective tests than those presently available, the disease is going to be with us for a long time because it is transmitted in a very silent fashion by many animals that appear clinically normal.