



# Nutritional Management of Patients with Chronic Kidney Disease

## Evaluation & Diagnosis:

**STEP 1:** History & Physical Examination

**STEP 2:** Nutritional Assessment\*

**STEP 3:** Body & Muscle Condition Score\*

**STEP 4:** CBC, Serum Chemistry including SDMA, UA

## THE FOUR STAGES OF KIDNEY DISEASE

The IRIS (International Renal Interest Society) Chronic Kidney Disease (CKD) staging system

	STAGE 1	STAGE 2	STAGE 3	STAGE 4
<b>REMAINING KIDNEY FUNCTION</b>	≤ 100%	≤ 33%	≤ 25%	≤ 10%
<b>AZOTEMIA</b>	None	Mild Renal	Moderate Renal	Severe Renal
<b>PLASMA CREATININE (mg/dl)<sup>†</sup></b>	<b>Canine</b> < 1.4	1.4 – 2.0	2.1 – 5.0	≥ 5.0
	<b>Feline</b> < 1.6	1.6 – 2.8	2.9 – 5.0	≥ 5.0
<b>SDMA (ug/dl)<sup>†</sup></b>	> 14	> 14	≥ 25	≥ 45
<b>UPC RATIO</b> Substage based on proteinuria	<b>Canine</b> <ul style="list-style-type: none"> <li>Nonproteinuric &lt; 0.2</li> </ul>	<ul style="list-style-type: none"> <li>Borderline proteinuric &lt; 0.2 – 0.5</li> </ul>	<ul style="list-style-type: none"> <li>Proteinuric &gt; 0.5</li> </ul>	
	<b>Feline</b> <ul style="list-style-type: none"> <li>Nonproteinuric &lt; 0.2</li> </ul>	<ul style="list-style-type: none"> <li>Borderline proteinuric &lt; 0.2 – 0.4</li> </ul>	<ul style="list-style-type: none"> <li>Proteinuric &gt; 0.4</li> </ul>	
<b>SYSTOLIC BLOOD PRESSURE</b> Substage based on blood pressure	<ul style="list-style-type: none"> <li>Normotensive &lt; 150</li> </ul>	<ul style="list-style-type: none"> <li>Borderline hypertensive 150 – 159</li> </ul>		
	<ul style="list-style-type: none"> <li>Hypertensive 160 – 179</li> </ul>	<ul style="list-style-type: none"> <li>Severely hypertensive ≥ 180</li> </ul>		
<b>ROLE OF NUTRITION</b>	<ul style="list-style-type: none"> <li>Protect kidney function &amp; body condition</li> <li>Ensure adequate calorie, amino acid and other key nutrient intake, including water</li> <li>Address concurrent weight &amp; mobility issues, if present</li> </ul>	<ul style="list-style-type: none"> <li>Control clinical signs of uremia</li> <li>Minimise disturbances with fluid, electrolyte &amp; acid-base balance</li> <li>Manage disease progression and secondary conditions</li> <li>Ensure adequate calorie, amino acid and other key nutrient intake, including water</li> </ul>		
	<p><i>NOTE: In cases with proteinuria only feed Hill's™ Prescription Diet™ k/d™</i></p>			
<b>PRODUCTS</b>	Hill's™ Prescription Diet™	Hill's™ Prescription Diet™	Hill's™ Prescription Diet™	Hill's™ Prescription Diet™
	<ul style="list-style-type: none"> <li>k/d™</li> <li>k/d™ + Mobility</li> </ul>	<ul style="list-style-type: none"> <li>k/d™</li> <li>k/d™ + Mobility</li> </ul>	<ul style="list-style-type: none"> <li>k/d™</li> <li>k/d™ + Mobility</li> </ul>	<ul style="list-style-type: none"> <li>k/d™</li> <li>k/d™ + Mobility</li> <li>u/d™</li> </ul>

\*According to WSAVA Global Nutrition Guidelines. Available at [www.wsava.org](http://www.wsava.org).

<sup>†</sup>Levels apply to average size dogs measured when patient is well hydrated.

<sup>‡</sup>Early dietary intervention may aid in successful transitioning to a therapeutic renal food.

# Options to help you manage individual patients



Clinically proven nutrition to support a longer and better quality of life,<sup>1,2</sup> now with improved nutritional support for building muscle mass daily



**NEW** renal solution formulated to also improve mobility in as little as 21 days (dogs) or 28 days (cats)<sup>3</sup>



Protein level sufficient for maintenance of adult dogs

Reduced phosphorus and sodium helps slow the progression of Chronic Kidney Disease	Reduced phosphorus and sodium helps slow the progression of Chronic Kidney Disease	Increased dietary capacity helps counteract the tendency for metabolic acidosis, a common complication of advanced kidney disease, and helps lessen muscle wasting
Essential amino acids - more than 150% of the FEDIAF - minimum to help the cat's natural ability to build muscle mass daily*	Essential amino acids - more than 150% of the FEDIAF - minimum to help the cat's natural ability to build muscle mass daily*	Low sodium to support kidney health
E.A.T.™ Technology - stimulates appetite in cats with kidney disease and increases caloric intake†	E.A.T.™ Technology - stimulates appetite in cats with kidney disease and increases caloric intake†	Added antioxidants to defend cells from free radical oxidation, promoting a healthy immune system
L-carnitine helps support fat utilisation as a source of energy, sparing muscles	L-carnitine helps support fat utilisation as a source of energy, sparing muscles	Taurine and L-carnitine helps maintain normal heart function
Antioxidants defend cells from free radical oxidation, promoting a healthy immune system	Antioxidants promote healthy immune system and brain function	
EPA/DHA from fish oil helps fight renal inflammation	EPA/DHA from fish oil helps fight renal inflammation	
B-complex vitamins help compensate for urinary losses due to kidney disease		

\*130% for dogs  
†Dry food only

<sup>1</sup>Ross SJ, Osborne CA, Kirk CA, et al. Clinical evaluation of dietary modification for treatment of spontaneous chronic kidney disease in cats. *J Am Vet Med Assoc.* 2006;229(6):949-957.

<sup>2</sup>Jacob F, Polzin DJ, Osborne CA, et al. Clinical evaluation of dietary modification for treatment of spontaneous chronic renal failure in dogs. *J Am Vet Med Assoc.* 2002;220(8):1163-1170.

<sup>3</sup>Roush JK, Cross AR, Renberg WC, et al. Evaluation of the effects of dietary supplementation with fish oil omega-3 fatty acids on weight-bearing in dogs with osteoarthritis.

*J Am Vet Med Assoc.* 2010;236(1):67-73.

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