



RENAL THERAPIES AS UNIQUE AS YOUR PATIENTS

Targeted supplements to support the management of:

UREMIC TOXINS
PHOSPHORUS
POTASSIUM

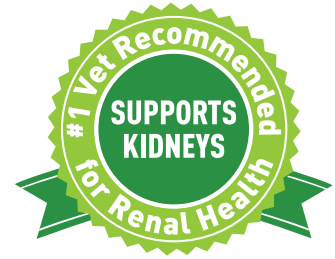


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www.pennvet.com

AZODYL™

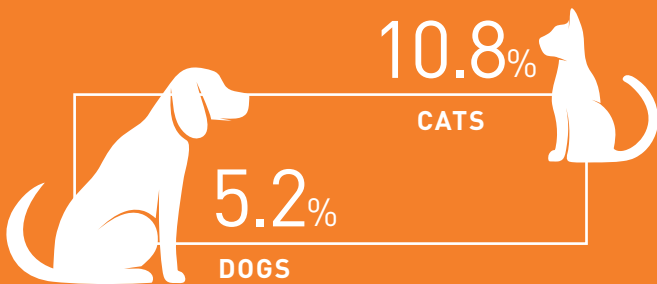
Early management of renal toxins can help maintain a pet's quality of life.



Begin **Azodyl** at first detected increase of BUN and Creatinine.

- The proprietary formulation of beneficial bacteria in Azodyl helps manage uremic toxins
- Shown to maintain quality of life by reducing renal toxins – improvement can be seen as early as four weeks²
- Compatible with other therapies
- Trusted by veterinarians and pet parents for over a decade

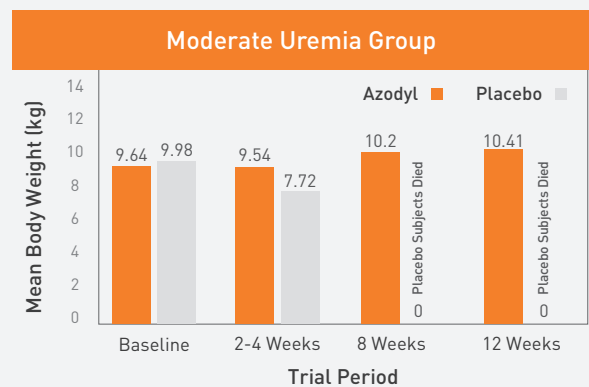
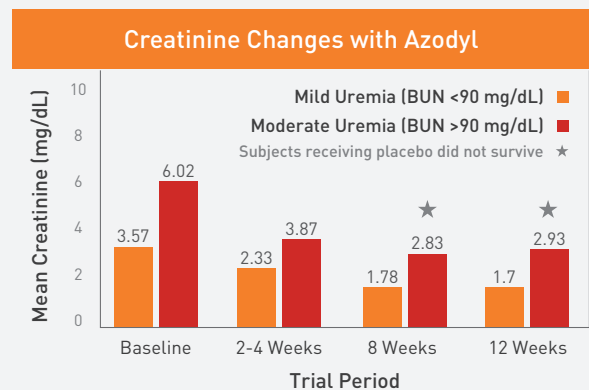
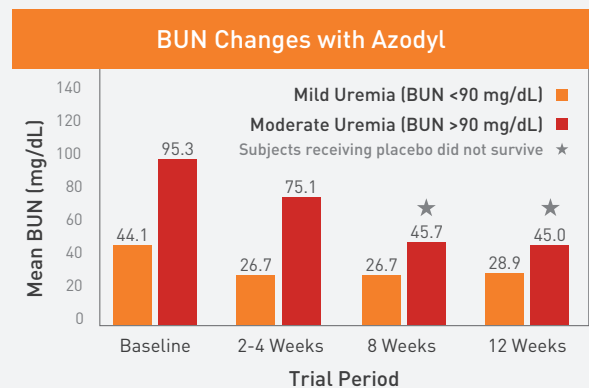
PERCENT OF ANIMALS
7+ YEARS THAT PRESENT
WITH CKD*:



- Loss of kidney function is irreversible and progressive
- Early diagnosis of renal issues is critical – physical signs can appear late

*North American Veterinary Research Group (NAVRC). "The Management of Chronic Kidney Disease in Dogs and Cats." Survey conducted in the USA, 2005.

AZODYL WAS SHOWN TO HELP MANAGE BUN, CREATININE AND MAINTAIN BODYWEIGHT.¹



EPAKITIN®

Managing phosphate has been shown to increase life expectancy of renal patients.

- Supports normal function and kidney health in dogs and cats
- Chitosan-based phosphate binder
- Easy to administer: give orally 2 times a day
- Can be used in conjunction with renal diets for additional phosphate management



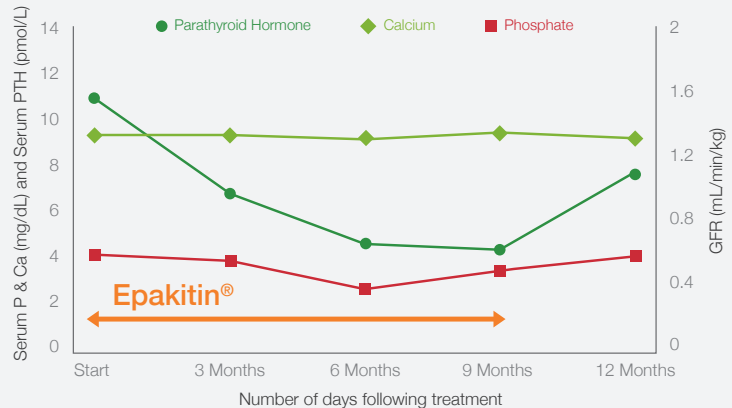
For best results, start Epakitin as soon as phosphorus levels exceed 4.5 mg/dL*

*Based on IRIS Treatment Recommendations for CKD

PTH AND SERUM PHOSPHATE REDUCED WITH USE OF EPAKITIN™ FOR 9 MONTHS⁵

Both began to increase after Epakitin was stopped. Serum calcium levels were not affected by use of Epakitin.

Effect of Epakitin® on serum calcium, phosphate, and PTH



PHOSPHATE MANAGEMENT INCREASED SURVIVAL TIMES BY 2.4X

Data represents median survival times of cats outside or inside the phosphate reference ranges recommended by the Hyperphosphatemia Roundtable^{3,4,6}

633 Days

Restricted Phosphorous Group

264 Days

Non-restricted Phosphorous Group

RENAL K+™

Managing potassium is an important step in supporting quality of life for renal patients.

- A highly palatable potassium supplement
- Use Renal K+ to help manage potassium levels in cats and dogs
- Available in gel and powder



EARLY DETECTION IS KEY

Cats and dogs should be tested at least annually. Test senior pets every 6 months.

AT THE FIRST SIGNS OF INCREASED BUN & CREATININE:

Begin Azodyl

ONCE PHOSPHATE LEVELS EXCEED 4.5 MG/DL:

Manage with Epakitin

ONCE POTASSIUM LEVELS FALL BELOW 4.0 MG/DL:

Use Renal K+ potassium supplement

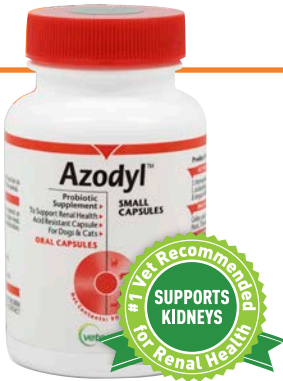




Sources

- 1 Ranganathan N, et al. Probiotics reduce azotemia in Gottingen minipigs. Poster presentation at the 3rd World Congress of Nephrology, June 26-30, 2005, Singapore.
- 2 A Preliminary Clinical Evaluation of Kibow Biotics, a Probiotic Agent, on Feline Azotemia. R. Palmquist, DVM. Journal of American Holistic Veterinary Medical Association. Jan-Mar 2006.
- 3 Elliott J: The role of phosphate in chronic kidney disease (CKD) progression, Part 2. UK Vet Vol, 13, No. 3, 37-47, 2008.
- 4 Elliott J, et al: Phosphotemia Management in the Treatment of Chronic Kidney Disease: A Round Table Discussion. 2006
- 5 Effects of an intestinal phosphorous binder on serum phosphorous and parathyroid hormone concentration in cats with reduced renal function. S.A. Brown, M. Rickertsen, S. Sheldon, The Journal of Applied Research in Veterinary Medicine. (2008) 6:3, 155-160.
- 6 Survival of cats with naturally occurring chronic renal failure: effect of dietary management. J. Elliott, J.M. Rawlings, P.J. Markwell, P.J. Barber, The Journal of Small Animal Practice. (2000) 41, 235-242

VETOQUINOL **RENAL SUPPORT** PRODUCTS

Targeted renal therapy for all stages.

PRODUCT			
DESCRIPTION	<p>Proprietary probiotic supplement specifically formulated to digest non-protein nitrogen in the large intestine.</p>	<p>Chitosan-based phosphate binder.</p>	<p>Palatable potassium supplement.</p>
FUNCTION	<p>To help support normal kidney function and maintain optimal health and quality of life for dogs and cats.</p>	<p>To help support normal function and health of the kidneys in dogs and cats.</p>	<p>To support normal muscle function and health in renal patients.</p>
WHEN TO USE	<p>Consider administration when azotemia is first detected; IRIS Stages 2-4.</p>	<p>Consider administration when serum phosphorus is above 4.5 mg/dL; IRIS stages 2-4. Remember that renal diets are a great start but, in some cases, may not be enough.</p>	<p>Use as a supplement to help promote normal potassium levels and help support normal muscle function and health in renal patients.</p>
ADMINISTRATION	<p>< 5 lbs: 1 capsule once daily 5-10 lbs: 1 capsule BID > 10 lbs: 2 capsules AM 1 capsule PM</p>	<p>1g per 5kg orally 2 times daily</p>	<p>Powder: 2.2 mEq per 10 lbs BID (1 level scoop = 2.2 mEq) Gel: 2 mEq per 10 lbs BID (½ teaspoon = 2 mEq)</p>

STAGING CHRONIC KIDNEY DISEASE

What to look for and therapy options for better outcomes.

INTERNATIONAL RENAL INTEREST SOCIETY (IRIS) RENAL STAGES ⁶	CLINICAL AND LABORATORY FINDINGS	IRIS RECOMMENDED THERAPIES ⁷
<p>STAGE 1 No Azotemia</p> <p>Cat: Creatinine <1.6 mg/dL SDMA <18</p> <p>Dog: Creatinine <1.4 mg/dL SDMA <18</p>	<ul style="list-style-type: none"> • Dehydration possible • UTI possible • Hypertension possible • Proteinuria possible 	<ul style="list-style-type: none"> • Disease-specific treatment <ul style="list-style-type: none"> - Treat underlying and/or concurrent disease(s) - Correct/prevent dehydration - Antibiotic therapy, if UTI detected - Discontinue/reduce all potentially nephrotoxic drugs - Hypertension: Cat: calcium channel blocker (CCB) or angiotensin receptor blocker (ARB), if severe use both Dog: ACE inhibitor (ACEI), if severe add CCB +/- ARB* - Proteinuria: Cat: ARB or ACEI* + renal diet Dog: ACEI* + renal diet, if severe add ARB - Renal diet (+/-)
<p>STAGE 2 Mild Azotemia</p> <p>Cat: Creatinine 1.6-2.8 mg/dL SDMA 18-25</p> <p>Dog: Creatinine 1.4-2.8 mg/dL SDMA 18-35</p>	<ul style="list-style-type: none"> • Dehydration possible • Hypertension possible • Proteinuria possible • Hyperphosphatemia possible • Hypercalcemia possible • Hypokalemia possible (Cat) 	<ul style="list-style-type: none"> • Disease-specific treatment <ul style="list-style-type: none"> - As in Stage 1 • Therapy to slow progression, including renoprotective therapy <ul style="list-style-type: none"> - Renal diet - Proteinuria: consider low-dose aspirin or clopidogrel - Phosphate management: renal diet +/- phosphate binder to maintain levels between 2.7-4.5 mg/dL - Calcium management: Cat: manage with diet; Dog: consider calcitriol** - Potassium management: Cat: hypokalemia, oral potassium gluconate or potassium citrate - Uremic toxin reducer
<p>STAGE 3 Moderate Azotemia</p> <p>Cat: Creatinine 2.9-5.0 mg/dL SDMA 26-38</p> <p>Dog: Creatinine 2.9-5.0 mg/dL SDMA 36-54</p>	<ul style="list-style-type: none"> • Dehydration possible • Hypertension possible • Proteinuria probable • Hyperphosphatemia probable • Hypercalcemia possible • Metabolic acidosis possible • Hypokalemia possible (Cat) • Anorexia/nausea/vomiting possible • Anemia possible 	<ul style="list-style-type: none"> • Disease-specific treatment <ul style="list-style-type: none"> - As in Stage 1 • Therapy to slow progression, including renoprotective therapy <ul style="list-style-type: none"> - As in Stage 2 - Manage hydration: consider IV or SQ fluids - Phosphate management: renal diet +/- phosphate binder to maintain levels between 2.7-5.0 mg/dL - Metabolic acidosis management: oral sodium bicarbonate (or potassium citrate), desired range between 16-24 mmol/L (Cat) or 18-24 mmol/L (Dog) - Anorexia/vomiting/nausea management: consider adding mirtazapine or ondansetron +/- maropitant (Cat); consider adding omeprazole (Dog) - Anemia: consider darbepoetin or erythropoietin
<p>STAGE 4 Severe Azotemia</p> <p>Cat: Creatinine >5.0 mg/dL SDMA >38</p> <p>Dog: Creatinine >5.0 mg/dL SDMA >54</p>	<ul style="list-style-type: none"> • Dehydration probable • Hypertension probable • Proteinuria probable • Hyperphosphatemia probable • Hypercalcemia probable • Metabolic acidosis probable • Hypokalemia probable (Cat) • Anorexia/nausea/vomiting probable • Anemia probable 	<ul style="list-style-type: none"> • Disease-specific treatment <ul style="list-style-type: none"> - As in Stage 1 • Therapy to slow progression, including renoprotective therapy <ul style="list-style-type: none"> - As in Stage 2 and Stage 3 - Phosphate management: renal diet +/- phosphate binder to maintain levels between 2.7-6.0 mg/dL - Consider placing esophageal or percutaneous gastric feeding tube to provide fluid and calorie support; also allows easier administration of medications - Consider dialysis and/or renal transplantation

Source

6 IRIS Staging of CKD (modified 2019)
7 IRIS Treatment Recommendations (modified 2019)
8 IRIS Consensus Panel 2015

+ Use of ACEI is contraindicated in patients that are clinically dehydrated. Correct dehydration before use.
++ When using calcitriol, regular checks of ionized calcium, phosphorus and PTH are recommended.