

ACCES for Pet Health

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What can a urinalysis tell you?

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When your pet is sick, the most important things we need to figure out what is going on are a good history and a good physical exam. However, many medical conditions can present in a similar way. Pets who are painful in their abdomen and who are not eating could have anything from a foreign body obstruction to an emerging liver cancer to even a kidney infection. The way we figure out what to do next is usually bloodwork and a urinalysis. From the blood, we can see what the



white blood cells, red blood cells and platelets are doing, we can look for elevations in liver, kidney, and pancreatic enzymes and we can make sure the blood glucose is OK. However, we really need to look at a urine sample as well to get a full picture.

Your kidneys work by filtering your blood. They take the waste products out and excrete them in your urine. They also control your water balance. If you don't drink very much, your kidneys help make sure your urine is very concentrated so you don't lose much fluid. If you decide to drink 15 glasses of water a day, your kidneys will make more dilute urine to get rid of the excess fluid your body doesn't need.

When your kidneys start to fail, the first thing that happens is that your urine becomes more dilute. This happens long before any changes can be seen in the blood. When we get a urine sample, we look at the Urine specific gravity, which is the measure of concentration. When looking at whether the concentration is normal or not, we do need to know how much your pet is drinking.. However, if your pet is dehydrated and the urine is dilute, this is usually a sign the kidneys are not working properly.

When we look at the urine, we also look for other compounds. Glucose, or sugar, is one thing we check for. Normally, there is no glucose in urine. If it is present, it can be a sign of diabetes. Ketones are abnormal products that are usually only seen in urine during certain types of diabetic crises.

Once we look at the chemical compounds and specific gravity, we then look at a sample under the microscope. Under the microscope, we can see blood, white blood cells, crystals, and occasionally tumor cells. Older cats can get bladder tumors and the abnormal cells can sometimes be seen when a urine sample is checked. The presence of white blood cells and bacteria can confirm the presence of an infection.

Crystals form for many reasons. A specific type of calcium oxalate crystals are often in the urine of animals who have drunk antifreeze so urinalysis can help us diagnose this type of toxicity. Animals with congenital liver problems can sometimes have ammonium biurate crystals and this often an early indication that a problem is present.

The last thing we consider is whether to culture the urine. Although most infections can be seen by looking at the urine under the microscope, some animals with immune problems will have "occult" infections. These animals may have a low grade illness but they may not act like they have an infection. In one study of dogs with Cushings disease, 40% had urinary tract infections and less than 5% of these dogs had signs of straining or discomfort.¹

The other reason to culture even when we know an infection is present, is that some infections are resistant to traditionally chosen antibiotics. When we culture the urine, we identify the type of bacteria and test it so we know which antibiotics will kill it.

The urinalysis is an important part of the diagnosis of any sick pet. Doing this test early when your pet is sick, may save you money in the long run.

1. Forrester SD. Retrospective Evaluation of Urinary Tract Infections in 42 dogs with Hyperadrenocorticism or Diabetes Mellitus or both. JVIM 2008; 13: 557.

Posted by **Christina Ryan** at December 23, 2009 3:05 p.m.

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