

Urine Specific Gravity Test

- The urine specific gravity (SG) test tells your veterinarian how concentrated your pet's urine is (how much water it contains).
- Collecting a urine sample for SG measurement can be done at your veterinarian's office or, sometimes, at home.
- If your pet's urine SG is abnormal, additional tests may be recommended to determine the cause.

What Is a Urine Specific Gravity Test?

The kidneys have several important functions in the body, including eliminating waste products through the urine and regulating the body's fluid balance. The urine specific gravity (SG) test tells your veterinarian how concentrated your pet's urine is (how much water it contains). If the SG is too high, it can mean inadequate amounts of water are being eliminated through the urine. If the SG is too low, it can mean the body is losing too much water through the urine. There is a relatively wide range of normal readings for a urine SG test, but there are also several medical conditions that can affect the result.

Measuring the urine SG can help your veterinarian determine how well your pet's kidneys are working. Urine that is too diluted may indicate that the kidneys can't retain enough water to prevent dehydration. Often, urine SG is evaluated along with other urine and blood tests that screen for abnormalities involving the kidneys. Your veterinarian may recommend these tests if any type of kidney problem is suspected.

How Is the Urine Specific Gravity Measured?

To measure your pet's urine SG, your veterinary team must obtain a small urine sample. For a dog, this may simply involve taking the dog for a short leash walk and collecting a sample as the pet urinates. You may even be able to do this at home. If so, be sure to collect the sample in a clean, dry container and bring it to your veterinarian as soon as possible. Ideally, urine should be tested right away (or at least the same day it is collected). If you can't deliver the

urine immediately, keep it refrigerated until you can take it to your veterinarian.

For cats, some veterinarians use a special type of plastic cat litter pellets and let the cat rest in a cage with some drinking water and a litterbox for a few hours. The plastic pellets are not absorbent, so once the cat urinates, the urine sample can be collected relatively easily. Some pet owners can also do this at home.

Most veterinarians perform the urine SG test in the office and have results the same day. To test the sample, one or two drops of urine are placed on the screen of a special hand-held instrument called a refractometer. This instrument allows your veterinarian to measure how concentrated your pet's urine is.

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What Does the Urine Specific Gravity Test Tell Your Veterinarian?

Several medical conditions can cause the urine SG to be abnormal:

- Dehydration
- Diabetes
- Adrenal gland disease
- Thyroid disease (in cats)
- Kidney disease

Although changes in the urine SG are commonly associated with illness, many other factors can affect the measurement. For example, if a healthy dog or cat drinks more water than usual (such as after exercise or on a hot day), the urine SG may be temporarily low (indicating diluted urine) because of increased water intake. Similarly, if a pet doesn't drink water

Tests and Procedures

for several hours or has become dehydrated, the urine SG may be higher than normal, indicating urine that is too concentrated. In both examples, the pets are likely healthy, but their urine SG readings may not be within the normal range.

As with any other diagnostic test, the results of a urine SG test are combined with physical exam findings, medical history, and other information to assess your pet's health status and determine if additional testing should be recommended. Additional tests may include a full urinalysis, radiographs (x-rays), an ultrasound examination, or blood testing.

Are There Risks Associated With Measuring the Urine Specific Gravity?

Very few risks are associated with measuring the urine SG. If your veterinarian simply collects a sample as your pet is urinating, there is no risk of harm to your pet. If another method of urine collection (such as using a urinary catheter or collecting the sample directly from the bladder using a syringe) is necessary, your veterinary staff will take precautions to ensure that your pet is not harmed.