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Urinalysis

A urinalysis is a test of your urine. A urinalysis is used to detect and manage a wide range of disorders, such as urinary tract infections, kidney disease and diabetes. A urinalysis involves checking the appearance, concentration and content of urine. Abnormal urinalysis results may point to a disease or illness.

Why it's done

A urinalysis is a common test that's done for several reasons:

- To check your overall health. Your doctor may recommend a urinalysis as part of a routine medical exam, pregnancy checkup, pre-surgery preparation, or on hospital admission to screen for a variety of disorders, such as diabetes, kidney disease and liver disease.
- To diagnose a medical condition. Your doctor may suggest a urinalysis if you're experiencing abdominal pain, back pain, frequent or painful urination, blood in your urine, or other urinary problems. A urinalysis may help diagnose the cause of these symptoms.
- To monitor a medical condition. If you've been diagnosed with a medical condition, such as kidney disease or a urinary tract disease, your doctor may recommend a urinalysis on a regular basis to monitor your condition and treatment.

Steps

To get the most accurate results, the sample may need to be collected midstream, using a clean catch method. This method involves the following steps:

- Cleanse the urinary opening. Women should spread their labia and clean from front to back. Men should wipe the tip of the penis.
- Begin to urinate into the toilet.
- Pass the collection container into your urine stream.
- Urinate at least 1 to 2 ounces (30 to 59 milliliters) into the collection container.
- Finish urinating into the toilet.

- Deliver the sample as directed by your doctor.
- If you can't deliver the sample to the designated area within 60 minutes of collection, refrigerate the sample, unless you've been instructed otherwise by your doctor.

In some cases, your doctor may insert a thin, flexible tube (catheter) through the urinary tract opening and into the bladder to collect the urine sample. The urine sample is sent to a lab for analysis. You can return to your usual activities immediately.

Results

For a urinalysis, your urine sample is evaluated in three ways: visual exam, dipstick test and microscopic exam.

Visual exam

A lab technician examines the urine's appearance. Urine is typically clear. Cloudiness or an unusual odor may indicate a problem, such as an infection. Blood in the urine may make it look red or brown. Urine color can be influenced by what you've just eaten. For example, beets or rhubarb may add a red tint to your urine.

Dipstick test

A dipstick — a thin, plastic stick with strips of chemicals on it — is placed in the urine to detect abnormalities. The chemical strips change color if certain substances are present or if their levels are above normal. A dipstick test checks for:

- Acidity (pH). The pH level indicates the amount of acid in urine. Abnormal pH levels may indicate a kidney or urinary tract disorder.
- Concentration. A measure of concentration, or specific gravity, shows how concentrated particles are in your urine. A higher than normal concentration often is a result of not drinking enough fluids.
- Protein. Low levels of protein in urine are normal. Small increases in protein in urine usually aren't a cause for concern, but larger amounts may indicate a kidney problem.
- Sugar. Normally the amount of sugar (glucose) in urine is too low to be detected. Any detection of sugar on this test usually calls for follow-up testing for diabetes.
- Ketones. As with sugar, any amount of ketones detected in your urine could be a sign of diabetes and requires follow-up testing.
- Bilirubin. Bilirubin is a product of red blood cell breakdown. Normally, bilirubin is carried in the blood and passes into your liver, where it's removed and becomes part of bile.

Bilirubin in your urine may indicate liver damage or disease.

- Evidence of infection. If either nitrites or leukocyte esterase – a product of white blood cells – is detected in your urine, it may be a sign of a urinary tract infection.
- Blood. Blood in your urine requires additional testing – it may be a sign of kidney damage, infection, kidney or bladder stones, kidney or bladder cancer, or blood disorders.

Microscopic exam

During this exam, several drops of urine are viewed with a microscope. If any of the following are observed in above-average levels, additional testing may be necessary:

- White blood cells (leukocytes) may be a sign of an infection.
- Red blood cells (erythrocytes) may be a sign of kidney disease, a blood disorder or another underlying medical condition, such as bladder cancer.
- Bacteria or yeasts may indicate an infection.
- Casts – tube-shaped proteins – may form as a result of kidney disorders.
- Crystals that form from chemicals in urine may be a sign of kidney stones.