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 URINALYSIS

Urinalysis is the test of the urine. Urinalysis is used to detect and manage a wide range of disorders, such as urinary tract infections, kidney disease and diabetes. Urinalysis involves checking the appearance, concentration and content of urine. Abnormal urinalysis results may point to a disease or illness. For example, a urinary tract infection can make urine look cloudy instead of clear. Increased levels of protein in urine can be a sign of kidney disease. Unusual urinalysis results often require more testing to uncover the source of the problem. 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 check-up, 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:** Urinalysis may be suggested by the doctor if one is 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 urinary tract disease, your doctor may recommend a urinalysis on a regular basis to monitor your condition and treatment.

Other tests, such as pregnancy testing and drug screenings, also may rely on a urine sample, but these tests look for substances that aren’t included in a typical urinalysis. For example, pregnancy testing measures a hormone called Human Chorionic Gonadotropin (HCG). Drug screenings detect specific drugs or their metabolic products, depending on the purpose of the testing. If the urine is being tested only for a urinalysis, one can eat or drink normally before the test. If the person is having other tests at the same time, you may need to fast for a certain amount of time before the test. Many drugs, including non-prescription medications and supplements, can affect the results of a urinalysis. Before a urinalysis, tell the doctor about any medications, vitamins or other supplements that are being taking. Depending on the situation, the person may collect a urine sample at home or at the doctor’s office. A container will be provided for the urine sample and the sample may be collected first thing in the morning because at that time the urine is more concentrated, and abnormal results may be obvious. 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 clean 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 the doctor.
* If the sample can’t be delivered to the designated area within 60 minutes of collection, it should be refrigerated.

 In some cases, a thin flexible tube (catheter) may be inserted through the urinary tract opening and into the bladder to collect the sample. For urinalysis, urine sample is evaluated in three ways: Visual exam, dipstick and microscopic exam.

**Visual Examination**

 A lab technician examines the urine’s appearance. Urine is typically clear. Cloudiness or an unusual odour may indicate a problem, such as an infection. Blood in the urine may make it look red or brown, although, urine colour can be influenced by what you’ve just eaten.

**Dipstick Test**

 A dipstick is a thin, plastic stick with strips of chemicals on it. It is placed in the urine to detect abnormalities. The chemical strips change colour 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 the 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 as 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 the 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 leucocytes esterase which is a product of white blood cells is detected in the urine, it may be a sign of a urinary tract infection.
* Blood: Blood in the 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 Examination**

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, blood disorder or another underlying medical condition, such as bladder cancer.
* **Bacteria or yeasts** may indicate an infection.
* **Casts:** this tube shaped proteins may form as a result of kidney disorders.
* **Crystals** that form from chemicals in the urine may be a sign of kidney stones.
* **Epithelial cells**, which can indicate a tumor.