

# **Urinalysis Lab Report**

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The urinary system or the renal system is a complex mix of organs that work together to produce, store and eliminate urine. The fluid excreted removes excess amounts of waste as is released as urine from the body. The importance of the urinary system is that without it our body won't be able to get rid of specific waste products or the amount of fluid intake. According to "The urinary system works with the lungs, skin and intestines to maintain the balance of chemicals and water in the body. Adults eliminate about 27 to 68 fluid ounces (800 to 2,000 milliliters) per day based on typical daily fluid intake of 68 ounces (2 liters), (Zimmermann, K.)." In other words, just in one day with the amount of water or fluid that is taken if not excreted the body won't be as comfortable as when urine is released as the cells and organs in the body would be in a hypertonic state. Another function is to maintain homeostasis. According to "Homeostatic regulation of blood plasma: Regulating blood volume and pressure, Regulating plasma ion concentrations, Stabilizing blood pH, Conserving nutrients (Martini, F)." This means that as urine processes are occurring in other parts of the body such as blood pH and blood pressure are being affected in a positive way to maintain a balance that is required in the body to feel healthy. The structure of the organs of the urinary system are as follows; The **kidneys** "The kidneys make urine by filtering wastes and extra water from blood" (Zimmermann, K.). In other words, the kidneys are where urine is made. The **ureters** are the organ where urine is transported from, into the **urinary bladder** where urine is stored temporarily. Once the **urinary bladder** is full then a person urinates releasing urine through the **urethra**. Also, called or known as elimination "The discharge of waste products into the environment (Martini, F)".

The lab experiment that would be conducted will be Urinalysis. A urinalysis is a test of your urine used for detecting and managing different kinds of **diseases** when abnormal, such as

urinary tract infections, kidney disease and diabetes. This test can be done as well a regular health checkup or before preparing for any surgery. Urinalysis are evaluated in three ways visual dipstick and microscopically. Microscopically urinalysis exams observe as the visual, however it more in depths as it focuses on substances, color and shape molecules that are not visible to the naked eye. Such as, white/red blood cell casts and crystals. Urinalysis visually checks the appearance, concentration and content of urine. Dipstick test with a chemical that reacts by changing color if substances are presents checks the following according to “**Acidity (pH)**. Abnormal pH levels may indicate a kidney or urinary tract disorder. **Concentration**. A higher-than-normal concentration often is a result of not drinking enough fluids. **Protein**. larger amounts may indicate a kidney problem. **Sugar**. Any detection of sugar calls for follow-up testing for diabetes. **Ketones**, number of ketones in urine are a sign of diabetes and requires. **Bilirubin**, Bilirubin in your urine may indicate liver damage or disease. **Infection**, If nitrites or leukocyte esterase a product of white blood cells is detected, it may be a sign of a urinary tract infection. **Blood**, in your urine may be a sign of kidney damage, infection, kidney or bladder stones, kidney or bladder cancer, or blood disorders([www.mayoclinic.org](http://www.mayoclinic.org)).” in other words to identify any health issues that can be related or found through urine which represents the lab activity to analyze and compare the urine samples and determine what the abnormalities in them.

The **materials** and **method** are as follow; Three different urine samples that are compared and analyzed. All of the samples were done with gloves on that are disposed after. Only Three multistix strips were used. One multistix was dipped into the normal urine artificial sample. Than that multistix was set down to develop in front of the sample bottle. The second multistix was dipped into the abnormal urine-1 whiach is an artificial sample and then set down to develop in front of the sample bottle as the first. The third multistix was dipped into the

abnormal urine-2 artificial sample and then set down to develop in front of the sample bottle same as the other two multistix. After all, 3 of the multistix strips developed an observation is done to the color on the strips to interpreted with a chart describing what each color meant. All results and observations were then recorded.

Sample Type	Leukocytes	Nitrate	Urobilino gen	Protein	pH	Blood	Specific Gravity	Ketone	Bilirubin	Glucose
Normal Urine Artificial	Negative	Negative	0.2 mg/dL	Negative	6.5	Negative	1.025	Trace 5 mg/dL	Negative	Negative
Abnormal Urine-1 Artificial	Negative	Negative	0.2 mg/dL	100 mg/dL ++	6.0	Negative	1.030	Negative	Negative	2,000 mg/dL or more
Abnormal Urine-2 Artificial	Negative	Negative	0.2 mg/dL	300 mg/dL +++	8.0	Large +++	1.005	Trace 5 mg/dL	Negative	1,000 mg/dL

All of three urine samples mention above and, in the table, tested give different results. These results will show a person's condition, However, the samples did not come from an actual person instead it was artificially made. Even though the experiment the samples weren't from actual people gave good results for the intentions of the experiment. The first substances the samples were tested for was leukocytes. All 3 samples indicated a negative result for leukocytes. As well for nitrites all 3-sample represented negative. This meant results shown to be normal. If results had nitrites according to "Nitrites are not usually found in urine and are associated with the presence of bacteria that can convert nitrate into nitrite." (nursingtimes.net). If it had leukocytes it will be same mean having infection in the urinary track according to "In urine, leukocytes are usually associated with a urinary infection"(nursingtimes.net). The next samples were tested for

urobilinogen. For urobilinogen it is normal to be found in urine and all 3 samples resulted in having normal amount. The samples were tested for protein the urine sample came up negative indicating that, it is normal. Abnormal Urine-1 had a presence of 100 mg/dL of protein and Abnormal Urine-2 had 300 mg/dL present, therefore in dictating much worse results. According to “In a healthy person, urine does not contain a level of protein that is detectable on a urine reagent strip. This is due to the protein molecules being too large to pass through the glomerular filtration barrier. When protein can pass through this barrier, it is known as proteinuria (Nursing Times). This means that protein shouldn't be in the urine to bigging with and if it's a helth condition that should be taking care of. The pH samples were tested. The normal pH range for urine is between 4.9 to 8 and all 3 samples where between the range, However Abnormal Urine 2 was close to too high of pH. Base on the results if the urine were more acidic or basic it could indicate urinary stones or a bacterial infection specially for abnormal urine 2. Blood samples are tested, the Normal Urine and Abnormal Urine-1 samples came up negative for blood, showing good indication. However Abnormal Urine-2 tested positive for tremendous amounts of blood Urine. When urine is tested for blood, there should be no sign of blood meaning it should always come be negative. If blood is present urine is mostly known as haematuria according to “Blood can enter urine via damage to the filtration barrier in the kidneys that normally prevents blood from entering the urine” (nursingtimes.net). Gravity sample are tested; Urine usually ranges from being diluted to concentrated and this shows the hydration as sates “Specific gravity identifies the hydration of an individual – a well-hydrated person will have diluted urine whereas someone who is dehydrated will present with concentrated urine. The normal range of specific gravity is 1.001-1.035.(nursingtimes.net).” 3 sample of gravity were into the normal range. Ketones sample follow, which are not usually found in urine. Abnormal Urine-1 came up negative, but the Normal Urine and Abnormal Urine-2 samples showed a some amount. Since is not so much

of an amount it not to dangerous, but doctors most likely will ask for a follow up. The test of bilirubin came up all 3 being negative samples, being good results. If bilirubin was present in the urine it could indicate liver disease. Glucose was tested. The Normal Urine sample show to be negative for glucose, Abnormal Urine-1 sample had 2,000 mg/dL and Abnormal Urine-2 sample had 1,000 mg/dL. Glucose is not in urine. If so, it means that the kidneys reached a point where they must now excrete it through urine to decrease blood concentration this could indicate diabetes or pregnancy.

Urinalysis through multimixstrip can help and tell a lot about the urinary system and about a person's overall health. This test can really help people overall specially, those who have problem or any symptom related to the diseases above. This experiment, with the specific method is gives a very good overall condition about a person helth through urine. While trying to test for specific symptoms it can allowed to discover other problem withing some one's health that they were not aware of; as it is very efficient for testing for multiple things at once. No harmful or painful processes need to be done just throw a regular process that the body goes through to release waste. Through urine.

Work cited

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