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BIO2312 section D057

Wednesdays at 2:30pm -5:00pm

Urinalysis

## **Introduction**

The urinary system produces, stores and eliminates urine, the fluid waste excreted by the kidneys (John Hopkins, 2008). The organs of the urinary system include the kidneys, renal pelvis, ureters, bladder and urethra. The primary function of the kidneys is to maintain a stable internal homeostasis for optimal cell and tissue metabolism. The ureters are narrow, hollow, muscular tubes, approximately nine inches long, that connect the kidneys to the bladder. The bladder is flexible and used as storage until the urine is allowed to pass through the urethra and out of the body. The urethra is the tube that carries urine from the bladder to outside of the body. This is what helps lead to taking a urinalysis.

What is urine analysis? Urine analysis is a test of your urine. A urine analysis is used to find disorders, diabetes and kidney (Mayo Clinic, 1998). Doing this also involves checking the concentration, appearance and the content of the urine. For example, the color will determine whether it's normal or abnormal, which will make it easier to know if there is an issue within your urinary system. This is also done to check your overall health because your body can change at any moment. It can diagnose a medical condition because you might have been complaining about abdominal pain, back pain or even painful urination. If this is the case then your urine will have to be monitored by having frequent urine analysis.

There are three ways that a urine sample is evaluated, which are 1. visual exam, 2. dipstick test and 3. microscopic exam. A visual exam is where a lab technician examines the urine's appearance. Urine is usually clear, but if it's showing a cloudiness or an unusual odor, it may indicate a problem, such as an infection. A dipstick test is a thin, plastic stick with strips of chemicals on it and it is placed in the urine to discover any abnormalities. The chemical strips

then change color if certain substances are present or if their levels are above normal. There are many things that the dipstick checks for. One of the things that it checks for is acidity (pH) meaning that the pH level indicates the amount of acid in the urine. Abnormal pH levels might mean having a kidney or urinary tract disorder. Another thing it looks for is concentration. This means that it shows how concentrated particles are in your urine. A higher than normal concentration often means that there isn't enough of drinking fluids. It looks for protein, but if there are large amounts of it then that may indicate a kidney problem. Another thing is the amount of sugar because sugar is normally too low to be detected, so if it is then there needs to be a following check up for diabetes. If there is bilirubin then that may lead to liver damage or disease. This is because bilirubin is a product of red blood cell breakdown. Bilirubin is carried in the blood and passes into your liver, where it's removed and becomes part of bile. Bile is a liquid that absorbs fats. A dipstick also looks for infection and this is detected if there are white blood cells found. Another thing it looks for is blood. If blood is detected, this requires additional testing and can mean kidney damage, kidney or bladder cancer or blood disorders. The microscopic exam is where several drops of urine are viewed with a microscope. If white blood cells are found then that may be a sign of an infection. If red blood cells are found, this may be a sign of kidney disease or a blood disorder. Bacteria or yeasts may mean an infection. Casts, which are 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.

There is a certain way to do a urinalysis. You are still able to eat and drink normally before the procedure. However, certain foods can discolor your urine, so you may want to watch what you eat beforehand. You should let your doctor know about all the medicines you take,

including over-the-counter drugs, vitamins, and supplements. If you're on your menstrual cycle, let the doctor know before the test. There's a method called clean-catch and these are the steps to it.

- Wash the area around the urinary opening.
- Start to pee into the toilet.
- Stop midstream.
- Let 1 to 2 ounces flow into the container.
- Finish peeing in the toilet.
- Follow your doctor's directions for handing over the sample.

For babies and other people unable to provide a sample this way, a doctor may have to insert a soft, narrow tube called a catheter through the urinary opening and into the [bladder](#).(webmd, 2005).

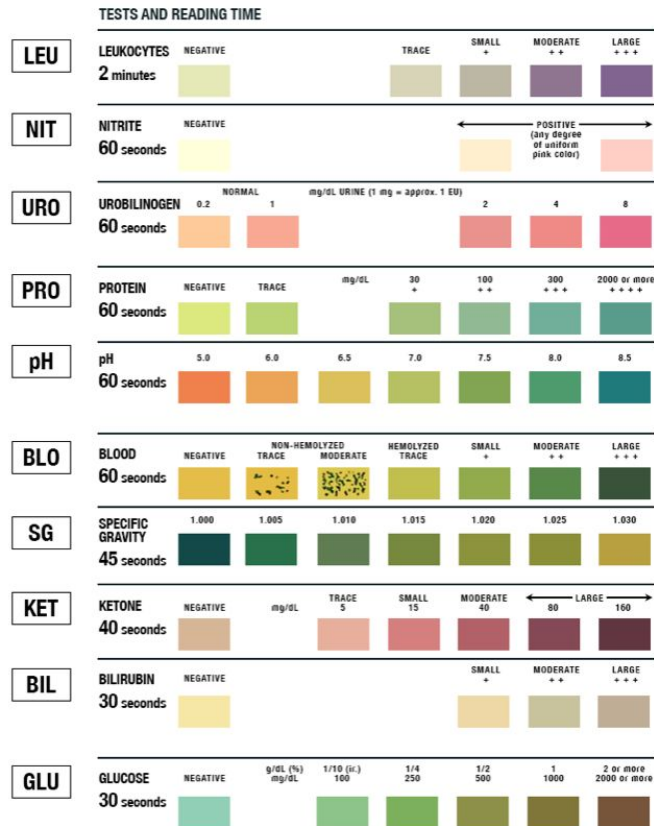
The purpose of this lab activity was to describe how urinalysis is done using Multistix.

### **Materials and Methods.**

The materials used in this lab were multistix, three different jars that each were different and at 10 . The first jar was normal urine artificial. The second is abnormal urine-1 artificial and the third one was abnormal urine-2 artificial. Each of the colors on the multistix stood for leukocytes left for 2 minutes, nitrite left for 60 seconds, urobilinogen left for 60 seconds, protein left for 60 seconds, ph left for 60 seconds , blood left for 60 seconds, specific gravity left for 45 seconds, ketone left for 40 seconds, bilirubin left for 30 seconds and glucose for 30 seconds. The method

is using the dipstick test. The multistix would be completely white at first then once put into the jars of urine it will show what substances were found in that urine.

## Results



## Conclusion

In the normal urine artificial substances that were found were blood but negative, a trace of non-hemolyzed, 1/1000 glucose, 0.2 urobilinogen and negative glucose. So this shows that the substances that were not found were leukocytes, nitrite, protein, ph, specific gravity and ketone. The substances found in the abnormal urine -1 artificial is blood that is negative, protein 2000 or more, ph for 6.0, specific gravity for 1.030, ph for 6.5, ketone small 15 and ketone for a moderate 40. The substances that were found in the abnormal urine-2 artificial were blood that

was negative, protein 300, ph 8.0, blood at a large rate, ph 8.5, ketone trace at 5 and glucose at 1/1000. All of the substances found in these urines seems accurate. For example the abnormal urines had higher numbers within the substances found in them, which makes sense because that person may have not been drinking the amount of water needed.