

# Urinalysis: Lab after Urinalysis PowerPoint

## Goals of this lab

1. Learn to properly dip the dipstick and hold it horizontal thereafter.
2. Learn to watch the time for color development.
3. Learn to interpret the results as to what is normal and abnormal.

**Materials:** Glass jars; urine samples; nail polish remover; serum from clotted blood; sliver of salami; egg white; urine dipsticks; urine dipstick standards ; exam gloves; optionally pus from a pimple or abscess, and urine from a jaundiced patient. Village Medical Manual, Volume 1, Appendix 2.

## Preparation:

1. The day before the lab, have students volunteer to submit urine specimens the next morning. Have them take the specimens from home right after voiding, or submit them immediately on arrival, before the PowerPoint lecture. Have samples as possible from the following people:
  - a. Someone who fasts overnight and does not have any breakfast; he may drink water.
  - b. Someone who fasts overnight and does not drink anything; he should arrive at class thirsty.
  - c. A menstruating female
  - d. Someone who runs several miles right before class and then submits a specimen.
  - e. A diabetic who submits a specimen before taking his insulin and again an hour after taking his insulin and eating.
2. Prepare urine specimens with the following, labeled as unknowns: a, b, c, d, etc. but not in the order written below. Keep a record of which unknown is which but don't let the students see it:
  - a. Urine with a few drops of nail polish remover: This should test positive for ketones
  - b. Urine with serum added<sup>1</sup>: This should test positive for protein, glucose, and blood
  - c. Urine with pus added: This should test positive for leukocytes
  - d. Urine taken from an alcoholic with liver disease, or someone jaundiced: This should test positive for bilirubin
  - e. Urine which has had a little sliver of salami in it for an hour: This should test positive for nitrites and possibly for blood also.
  - f. Urine with a quarter teaspoon of egg white in it: This should test positive for protein.

## Student Steps

1. Watch the Urinalysis PowerPoint lecture.
- 2.
3. Test each specimen and predict which specimen came from which volunteer
4. Test the unknowns and record your results. With your group, predict what conditions could cause your findings with each specimen.

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<sup>1</sup> Draw about 5 ml of blood from a volunteer. Put it in a plain test tube or a spent, cleaned medication vial. Let it sit for an hour or two. The blood will clot and the red stuff go to the side or the bottom. If it is on the side, you can push the clot down to make the clear serum come to the top. Then draw off the serum with a syringe and add it to the urine specimen.

5. Demonstration:

- a. Shake up urine from a liver patient; note the yellowish foam.
- b. Boil urine that is 3+ or more for protein; note that it becomes cloudy.

**Guidelines:**

For instructor: Be sure to leave no evidence with the unknowns to give a clue as to which is which.

Remove the salami from the urine, don't leave bits of serum or pus on the bottles.

For students:

- Pour the urine over the strip while holding it horizontal. Don't hold it vertical so the colors run into each other.
- Hold the bottle close to the dipstick, also horizontal.
- Be sure to wait the required time before looking at the colors.
- Note that a positive result is not necessarily abnormal. Athletes are commonly 1+ for protein; menstruating females are commonly 4+ for blood; diabetics normally have some sugar in their urine before taking insulin, sometimes after also.
- Note that the protein and bilirubin elements have confirmatory tests.