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Blood Testing

MATERIALS NEEDED

Mammal blood other than human or contaminant-free human blood is suggested as a substitute for collected blood.

Textbook
Sterile disposable blood lancets
Alcohol swabs
Disposable gloves

For Procedure A:

Heparinized microhematocrit capillary tube
Sealing clay (or Critocaps)
Microhematocrit centrifuge
Microhematocrit reader

For Procedure B:

Tallquist test kit
Hemoglobinometer
Lens paper
Hemolysis applicator

For Procedure C:

Capillary tubes (nonheparinized)
Small, triangular file
Timer

SAFETY

- Review all Laboratory Safety Guidelines in Appendix 1 of your laboratory manual.
- It is important that students learn and practice correct procedures for handling body fluids. Consider using either mammal blood other than human or contaminant-free blood that has been tested and is available from various laboratory supply houses. Some of the procedures might be accomplished as demonstrations only. If student blood is used, it is important that students handle only their own blood.
- Use an appropriate disinfectant to wash the laboratory tables before and after the procedures.
- Wear disposable gloves when handling blood samples.
- Clean the end of a finger with alcohol swabs before the puncture is performed.
- Use the sterile blood lancet only once.
- Dispose of used lancets and blood contaminated items in an appropriate container (never use the wastebasket).
- Wash your hands before leaving the laboratory.

PURPOSE OF THE EXERCISE

To observe the blood tests used to determine hematocrit, hemoglobin content, and coagulation time.



LEARNING OUTCOMES

After completing this exercise, you should be able to

- 1 Test and record the hematocrit, hemoglobin, and coagulation in a blood sample.
- 2 Evaluate the results of the blood tests compared to normal values.
- 3 Identify the blood tests performed in this laboratory exercise that could indicate anemia.

As an aid in identifying various disease conditions, tests are often performed on blood to determine how its

composition compares with normal values. These tests commonly include hematocrit (red blood cell percentage), hemoglobin content, and coagulation. A self-diagnosis should never be made as a result of a test conducted in the biology laboratory. Always obtain proper medical exams and treatments from medical personnel.



EXPLORE

PROCEDURE A—Hematocrit

To determine the hematocrit (percentage of red blood cells) of a whole blood sample, the cells must be separated from the liquid plasma. This separation can be quickly accomplished by placing a tube of blood in a centrifuge. The force created