Hematocrit (Packed Cell Volume – PCV)

Hematocrit is the proportion of blood volume that is occupied by erythrocytes (the ratio of red blood cells to the whole blood volume). It is usually expressed either as a percentage or as a decimal fraction (e.g. 41% or 0.41). The term comes from Greek roots hemat- (blood) and krites (judge).

Procedure:
1. Puncture the skin of the finger and collect blood from the capillary directly into heparinized microhaematocrit tube; fill 2/3 of the tube.
2. Seal one end of the tube with clay or a sealant. Avoid trapping air between the blood and plug.
3. Place the tube into a calibrated microhaematocrit centrifuge, sealed ends out against a rubber ring. Place firmly the lid over the centrifuge head. Close the cover. Set the timer (most instruments require 3 to 5 minutes centrifugation time). Centrifuge the tube (usually at 10,000 RPM).
4. The tube should be removed and read within a minute or two after the centrifuge has stopped to avoid re-dispersion of cells. Hemolysis should be noted, since this may lower the hematocrit results in relation to the hemoglobin (the hematocrit is 3 times the value of the hemoglobin, if the cells are normocytic).
5. Use a lined card, wheel or other device to determine the hematocrit value. They all work by the same principle, measuring the height of the total blood column and the height of the red cell layer.

Reference values:
- Newborn infants - 50 ÷ 70%,
- Newborn at one week of age - 37 ÷ 49%,
- Infant at three month of age - 30 ÷ 36%,
- Infant at one year of age - 28÷ 45%,
- Child at ten years of age - 36 ÷ 40%,
- Adult female - 36 ÷ 46%,
- Adult male - 38 ÷ 50%.
Table used for the graphical assessment of the hematocrit (Packed Cell Volume).