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1: Crit Care Med. 1989 Sep;17(9):929-33.

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**Hematocrit monitor.**

**Gilbert JW, Holladay FP, Weiser HC.**

Department of Surgery, University of Kentucky Chandler Medical Center,  
Lexington 40536-0084.

The purpose of this study is to determine experimentally the optimal incident visible wavelength and light detector angle that yields the maximal change in optical density between an arterial or venous Hct of 20% and 40%. A universal monochromator allows incident wavelengths in 8-nm increments over the visible range to be selected for the incident beam and a motorized shuttle allows the two samples (Hct 20% and 40%) to be placed reproducibly between the incident beam and photodiode detector. Runs performed with the light detector at a 30 degree, 90 degree, and 180 degree angle from the incident light beam revealed the greatest change in optical density between an Hct of 20% and 40% to occur at 624 nm and 90 degrees independent of sample cell configuration, light source profile, or light detector profile. This experimentally determined optimal wavelength and angle are utilized in a fiberoptic biosensor to monitor Hct successfully in dogs undergoing surgical procedures.

PMID: 2766768 [PubMed - indexed for MEDLINE]

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Evaluation of STAT-CRIT hematocrit determination in comparison to Coulter and centrifuge: the effects of isotonic hemodilution and albumin administration. [Am J Crit Care. 1998]

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