

Individual Hematocrit Correction for InnovaStar[®] and SensoStar POCT Systems

Corrected Glucose Plasma Values from Whole Blood Samples

Glucose values obtained from plasma or whole blood cannot be compared easily. Due to deviating water contents of plasma (93%) and whole blood (84%), glucose values differ because glucose is only present in the aqueous phase.

The hematocrit value represents the percentage of all cellular blood components - about 99% are erythrocytes - hence providing information regarding the water content of whole blood. It is well known that the hematocrit value is variable among individuals (normal range 35-55%).

The IFCC, national as well as international diabetes organizations recommend the reporting of glucose plasma values irrespective of sample material and applied testing method. The recommended IFCC conversion factor of 1.11 for plasma vs. whole blood is based on an average hematocrit value of 43%.

Due to deviating hematocrit values (see above), calculations using the recommended medium value may deviate from true glucose concentrations.

The POCT systems InnovaStar[®], SensoStar GL30 touch and SensoStar GLHsix use the **individual hematocrit correction** to avoid inaccurate calculations. These instruments measure the individual hemoglobin concentration (hematocrit value and Hb concentration are correlated) of a whole blood sample. The measured hemoglobin value is the basis to generate the individual compensation factor for the calculation of whole blood glucose into plasma glucose for each sample - thus providing true glucose values.

Reference:

Fogh-Andersen, N.; D'Orazio, P.; Proposal for standardizing direct-reading biosensors for blood glucose; Clin Chem 44:3;(1998) 655. 659