Within-Individual Hematocrit Variations and Self-Monitoring of Blood Glucose

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Abstract

Many self-monitoring of blood glucose (SMBG) systems have generated artefactually increased glucose results in low-hematocrit patients (e.g., intensive care unit and renal failure patients); conversely, these devices could produce artefactually decreased glucose results in high-hematocrit patients (e.g., neonates). The introduction of hematocrit-independent SMBG systems permits more accurate testing in anemic or polycythemic individuals. In this issue of Journal of Diabetes Science and Technology, Ramljak and coauthors have created glucose bias graphs for 19 common SMBG devices and declared certain systems to be optimally accurate because of insensitivity to hematocrit variation over a broad hematocrit range. Luckily, the average within-individual variation of hematocrit is low (between 2.9 and 3.3%). As such, a larger spectrum of SMBG devices can be regarded as optimally hematocrit independent.


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Abbreviations: (CVw) within-subject coefficient of variation, (HIF) hematocrit interference factor, (SMBG) self-monitoring of blood glucose

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