ORIGINAL ARTICLE

Split Sample Analysis of Serum Folate Levels After 18 Days in Frozen Storage

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SUMMARY

Reliable measurement of folate is becoming increasingly important as links between dietary folate intake, the use of vitamins containing folic acid, and health outcomes such as birth defects and cardiovascular disease are identified. This study was undertaken to formally assess whether the quantity of folate in serum declines after the serum is frozen and stored. Blood samples from 83 pregnant women were tested for serum folate shortly after collection and again after 18 days of storage at −20 °C. A shift from higher to lower serum folate categories was observed after 18 days of storage. For the first test, 40.9% of the samples were ≥ 20 µg/L compared with 19.3% of the test results on second test. For the 75 samples in the quantifiable range (< 40 µg/L), a mean decrease of 5.0 µg/L (± 0.5) of serum folate was observed (p < 0.0001). When compared to serum samples stored in a non frost-free freezer at −20 °C or −70 °C, serum stored in a frost-free freezer at −20°C for even a short period of time may be relatively unstable and sensitive to minor temperature fluctuations associated with the freeze-thaw cycles. (Clin. Lab. 2000;46:483-486)