Vitamin K status measures in Health ABC:

Plasma phylloquinone (vitamin K1) and dihydrophylloquinone were determined using reversed-phase HPLC with post-column, solid phase chemical reduction of phylloquinone to its hydroquinone, followed by fluorometric detection (1) at the Vitamin K Laboratory at the USDA Human Nutrition Research Center on Aging at Tufts University, where this assay, which has been applied to population and metabolic studies of vitamin K nutritional status, was developed (2). Low and high control specimens had average values of 0.56 and 3.15 nmol/L, with a % coefficient of variation of 15.2% and 10.9% respectively (2).

Phylloquinone is the primary circulating form of vitamin K, and is considered an overall indicator of vitamin K nutritional status (3). An unintended consequence of the commercial hydrogenation of trans fatty acids is conversion of phylloquinone (vitamin K1) todihydrophylloquinone. Dihydrophylloquinone is detectable in circulation when trans fatty acid intakes are high (4).

Plasma uncarboxylated matrix gla protein (ucMGP): Dephosporylated-ucMGP was measured from stored samples of citrated plasma using a sandwich ELISA, which uses two monoclonal antibodies directed against the non-phosphorylated sequence and non-carboxylated amino acid sequences (VitaK BV, Maastricht,the Netherlands) (5;6). The analyses of plasma ucMGP was done at VitaK (Maastricht, the Netherlands), where the assay was developed. The reported intra- and inter-assay variability for this assay are 5.6% and 9.9% respectively (7).

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