



National Diet and Nutrition Survey Rolling Programme (NDNS RP): Supplementary report: blood folate results for the UK as a whole, Scotland, Northern Ireland (Years 1 to 4 combined) and Wales (Years 2 to 5 combined)

Corrections required to free (unmetabolised) folic acid and serum total folate concentrations

The laboratory contractor for folate analysis in the NDNS has identified a problem with the assay for free (unmetabolised) folic acid which has led to reported results for free folic acid in the NDNS supplementary report on blood folate (published in March 2015) being around 25-30% too high. Free folic acid is one of the components of serum total folate, measured in NDNS samples by liquid chromatography coupled to tandem mass spectrometry (LC-MS/MS). LC-MS/MS is recognised as a 'state of the art' method which captures the individual forms of naturally occurring folate in serum plus free folic acid.

Serum free folic acid concentrations in the UK population are low (around half the NDNS samples contain none) and make a small contribution to serum total folate so the impact on the mean results for serum total folate is very small. The assays for the naturally occurring forms of folate in the serum are unaffected. Median free folic acid concentrations will decrease by 25-30%, equivalent to 0.1-0.2 nmol/L, while median serum total folate concentrations will decrease by around 1%, also equivalent to 0.1-0.2 nmol/L.

Serum total folate concentration is used in the calculation of red blood cell folate concentration from whole blood folate concentration. However the impact of the error on calculated red blood cell folate concentrations is negligible. The laboratory contractor has now resolved the problem with the assay and amended results have been produced. The impact of this error on the published results is very small and will not change the interpretation of the folate status of the UK population.

As previously reported, we were awaiting the publication of adjusted WHO thresholds to define biochemical folate deficiency which are specific to the NDNS assay method. See correction note dated February 2016 for more details.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501058/Notice_of_required_corrections_NDNS_blood_folate_thresholds_170216.pdf

The adjusted thresholds were published in September 2016¹. They are higher than the original published thresholds and so the percentage of people falling below the thresholds for biochemical folate deficiency will increase.

Publication of corrected results

Now that the new thresholds are available we are preparing to republish the NDNS supplementary folate report to provide corrected results for the mean and distribution of serum total folate and free folic acid concentrations and the percentage of participants falling below the thresholds defining biochemical folate deficiency. We hope to be in a position to republish in early 2017.

Public Health England
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¹ Pfeiffer CM, Sternberg MR, Hamner HC, Crider KS, Lacher DA, Rogers IM, Bailey RL, Yetley EA (2016) Applying inappropriate cutoffs leading to misinterpretation of folate status in the US population,. Am J Clin Nutr. Doi: 10.3945/ajcn.116.138529