



## Maternal dietary folate intakes during early pregnancy

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There is now considerable evidence that maternal nutrition is an important in achieving healthy pregnancy outcome. For instance, low folate status is a critical risk factor for neural tube defect (NTD) births<sup>(1)</sup>. Since 1993, the Irish Department of Health has advised that all women at risk of becoming pregnant should take an additional 400 µg of supplemental folic acid (FA) daily prior to conception and during the first 12 weeks of pregnancy.

This prospective observational study examined maternal dietary folate intake in the first trimester as estimated using a supervised diet history protocol.

Women were recruited at their convenience in January 2014 after sonographic confirmation of a singleton pregnancy in the first trimester. Maternal body composition was measured using 8-electrode bioelectrical impedance analysis. Maternal dietary information was assessed using a 4-day retrospective food diary (FD) (including two weekend days) in combination with a food frequency questionnaire (FFQ), an approach that has been previously validated against biomarker data<sup>(2)</sup>. Both the FD and FFQ were completed under the supervision of a research dietitian. During this interview all reported portion sizes were fully quantified and confirmed by the research dietitian using food portion size estimation tools. The food composition database Weighed Intake Software Package (WISP, version 4.0; Tinuviel Software, Llanfechell, Anglesey, United Kingdom) was used to calculate daily energy and folate intakes. When Black's equation for under-reporting<sup>(3)</sup> was employed no under-reporters were found.

Of the 65 women recruited, mean maternal BMI was 26.6 kg/m<sup>2</sup> (±6.1), with 17.9% obese. Mean maternal age was 30.8 years (± 6.1). Sixty three women completed the food diary with the dietitian. Of these women, 54% had a dietary folate intake below the estimated average requirement of 246 µg/d<sup>(4)</sup>. The mean (SD) dietary folate intake observed in the study population was 230 (±78) µg. This was lower than that reported by other studies investigating maternal dietary folate intake in the first trimester, which range from 260–310 µg/d<sup>(5, 6)</sup>.

This study suggests that intakes of folate from dietary sources are below recommended levels in over half of Irish women during the first trimester of pregnancy. Public health interventions may be required to help expectant mothers achieve their higher dietary folate intake requirements during pregnancy.

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