

Effect of folic acid supplementation during pregnancy on cognitive development of the child at 6 years: preliminary results from the FASSTT Offspring Trial

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The well-known protective effect of folic acid against neural tube defects (NTDs) relates to the period of early pregnancy when closure of the neural tube occurs⁽¹⁾. The role of maternal folic acid supplementation during the later stages of pregnancy is however less clear and it is unknown whether there are any other long term benefits to the offspring. Several lines of evidence suggest that maternal folate intake and status during pregnancy might affect the neurocognitive development⁽²⁾ in the offspring and child behaviour⁽³⁾, however the evidence so far is largely limited to observational and animal studies. The aim of the current study was to investigate the effect of folic acid supplementation during pregnancy on the cognitive development of the child at 6 years.

Mother-child pairs (*n* 62) were recruited from a previous randomised controlled trial which investigated the effect of Folic Acid Supplementation during the Second and Third Trimesters of pregnancy (FASSTT)⁽⁴⁾. Cognitive performance of the child was evaluated by a trained researcher using the ‘Wechsler Preschool and Primary Scale of Intelligence, 3rd Edition’ (WPPSI-III). The WPPSI-III is comprised of 14 tests providing composite scores that represent cognitive functioning in specified domains, as well as providing an overall score that represents general intellectual ability.

Analysis showed that children of mothers who received folic acid supplements during the second and third trimesters of pregnancy scored significantly higher in the ‘word processing’ test of the Verbal Composite Score (Table).

WPPSI-III	Treatment group of mother during pregnancy				P-value
	Placebo (<i>n</i> 27)		Folic Acid (<i>n</i> 35)		
	Mean	SD	Mean	SD	
Verbal Composite Score	103.18	11.1	103.62	10.7	0.514
Information test	10.85	2.8	10.34	2.3	0.496
Vocabulary test	9.63	2.0	9.37	2.3	0.808
Word processing test	11.52	2.7	12.71	2.5	0.027
Comprehension test	9.74	2.4	9.97	2.1	0.464

Values are presented as mean scores for the Verbal Composite Score and its component tests. WPPSI-III test scores between placebo and treatment groups were compared using ANCOVA adjusting for maternal age, birth weight, maternal education attainment, maternal smoking and alcohol consumption.

While no previous study has investigated the effect on cognitive development of folic acid supplementation during the later stages of pregnancy, the current results are in general agreement with the findings of observational studies published in this area⁽⁵⁾. At present, no government guidelines exist for the use of folic acid supplements during the later stages of pregnancy. This preliminary analysis of an on-going trial suggests that there may be potential benefits of continuing folic acid supplementation during pregnancy beyond its established role in the prevention of NTDs

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