Effects of antenatal diet and physical activity on maternal and fetal outcomes: individual patient data meta-analysis and health economic evaluation

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Declared competing interests of authors: Hans Hauner reports grants from the German Ministry of Education and Research, the Bavarian Ministry of Agriculture and Nutrition, the Bavarian Ministry of Health, the Helmholtz Center Munich, the Else Kröner-Fresenius Foundation, AOK Bavaria (health insurance fund), Amway and the German Research Foundation outside the submitted work. Ben Willem Mol reports other grants from ObsEva during the conduct of the study.

Published August 2017
DOI: 10.3310/hta21410

Plain English summary

Effects of antenatal diet and physical activity on maternal and fetal outcomes
Health Technology Assessment 2017; Vol. 21: No. 41
DOI: 10.3310/hta21410

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Maternal obesity and excessive weight gain in pregnancy increase complications in the mother and baby. These may be reduced by diet and physical activity. It is possible that benefits are restricted to particular groups of women based on their body mass, age, number of previous children, ethnicity and underlying medical condition(s). We looked at the effects of diet and physical activity on weight gain in pregnancy and on the risk of complications in the mother and baby. We obtained anonymised data of individual participants from multiple studies, and combined them using the technique known as individual patient data meta-analysis. This was intended to allow us to identify particular groups of women who may benefit from diet and physical activity.

We established the International Weight Management in Pregnancy Collaborative Network, comprising anonymised data of 12,343 women from 36 studies. We found that diet, physical activity and mixed methods, individually and when analysed together, effectively reduced weight gain in pregnancy, possibly decreased complications in the mother and had no effect on the baby. The effects were similar in all groups of women.

We did not identify any benefit to mothers or their children when they gained weight within specific targets that are currently recommended in many countries. A mother’s age and a history of previous births predicted weight gain in pregnancy.

Diet and physical activity in pregnancy reduced weight gain by 0.7 kg, and had no effect on combined complications. There were with no differences in these benefits between various groups of women. The rate of Caesarean section was reduced by the lifestyle intervention compared with usual care.
Health Technology Assessment

ISSN 1366-5278 (Print)
ISSN 2046-4924 (Online)
Impact factor: 4.236

Health Technology Assessment is indexed in MEDLINE, CINAHL, EMBASE, The Cochrane Library and the Clarivate Analytics Science Citation Index.

This journal is a member of and subscribes to the principles of the Committee on Publication Ethics (COPE) (www.publicationethics.org/).

Editorial contact: journals.library@nihr.ac.uk

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This report

The research reported in this issue of the journal was funded by the HTA programme as project number 12/01/50. The contractual start date was in February 2013. The draft report began editorial review in November 2015 and was accepted for publication in August 2016. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The HTA editors and publisher have tried to ensure the accuracy of the authors’ report and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this report.

This report presents independent research funded by the National Institute for Health Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health. If there are verbatim quotations included in this publication the views and opinions expressed by the interviewees are those of the interviewees and do not necessarily reflect those of the authors, those of the NHS, the NIHR, NETSCC, the HTA programme or the Department of Health.

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