

Carbohydrate intake and risk of developing gestational diabetes

Submission date 19/10/2017	Recruitment status No longer recruiting	☐ Prospectively registered ☐ Protocol
Registration date 23/10/2017	Overall study status Completed	☐ Statistical analysis plan ☒ Results
Last Edited 10/07/2018	Condition category Pregnancy and Childbirth	☐ Individual participant data

Plain English summary of protocol

Background and study aims

Gestational diabetes (GDM) is high blood sugar (glucose) that develops during pregnancy and usually disappears after giving birth. It is one of the most common pregnancy complications and increases the risk of adverse pregnancy and health outcomes for both mothers and their offspring. Carbohydrate restriction and evenly spreading carbohydrate intake throughout the day helps women with GDM to control their blood glucose levels. Carbohydrate intake and the glycaemic load (quality and quantity of carbohydrate) of the pre-pregnancy diet may also influence the risk of developing GDM according to one US study. However, whether this is also the case for other populations is not known. The aim of this study is to examine the associations between glycaemic index, glycaemic load, and carbohydrate content of the pre-pregnancy diet and the risk of developing GDM in an Australian population.

Who can participate?

Women born in 1973–78 in the young cohort of the Australian Longitudinal Study on Women's Health (ALSWH)

What does the study involve?

Data is collected from the ALSWH study, including dietary intake data collected in 2003 and 2009 and information on pregnancies that occurred between 2003 and 2015, to assess the association between different aspects of carbohydrate intake and the development of GDM.

What are the possible benefits and risks of participating?

There are no benefits or risks of participation.

Where is the study run from?

University of Queensland (Australia)

When is the study starting and how long is it expected to run for?

January 2017 to November 2017

Who is funding the study?

Department of Health (Australia)

Who is the main contact?
Moniek Looman

Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Protocol serial number
A650

Study information

Scientific Title
Pre-pregnancy dietary carbohydrate intake and risk of developing gestational diabetes in an Australian population

Study objectives
Carbohydrate quantity and quality affect postprandial glucose response, glucose metabolism and risk of type 2 diabetes. However, research investigating pre-pregnancy carbohydrate quantity and quality in relation to gestational diabetes (GDM) risk is limited.

Ethics approval required
Old ethics approval format

Ethics approval(s)
University of Newcastle Human Research Ethics Committee, approval no's. H-076-0795 and H-2012-0256
University of Queensland Medical Research Ethics Committee, approval no's. 2004000224 and 2012000950

Primary study design
Observational

Study design
Observational cohort study

Study type(s)

Prevention

Health condition(s) or problem(s) studied

Gestational diabetes

Interventions

This study is an analysis using data of the ongoing prospective population-based prospective cohort study: the Australian Longitudinal Study on Women's Health (ALSWH). ALSWH investigates the role of demographic, social, physical, psychological, and behavioral factors in women's health. Full details on study design, recruitment, methods and responses have been published.

In 1996 approximately 15,000 women born in 1973–78 (18–23 years) were recruited for participation in the young cohort of the ALSWH study. Women were randomly selected from Australia's nationalized health-care system, Medicare, with intentional oversampling in rural and remote areas. Self-administered questionnaires assessing demographic, social, lifestyle and reproductive factors were sent to participants every 3-4 years. The most recent survey was completed in 2015.

For the current study, dietary intake data (collected in 2003 when women were 25-30 years old and 2009 when women were 31-36 years old) was used as well as information on pregnancies of the women that occurred between 2003 and 2015. From the dietary intake data, total carbohydrate intake, total sugar intake, total fiber intake, glycemic index, glycemic load and intake of carbohydrate rich food groups was calculated. The association between different aspects of carbohydrate intake and development of gestational diabetes was assessed using multi-variable generalized equation estimates. Women who were pregnant at time of dietary intake assessment were excluded for analyses to be able to investigate pre-pregnancy dietary intake.

Intervention Type

Other

Primary outcome(s)

Development of gestational diabetes, assessed using questionnaire data about pregnancies that occurred between 2003 and 2015

Key secondary outcome(s)

No secondary outcome measures

Completion date

01/11/2017

Eligibility

Key inclusion criteria

Participants from the young cohort from the ALSWH study with information on dietary intake and pregnancies between 2003 and 2015

Participant type(s)

All

Healthy volunteers allowed

No

Age group

Adult

Sex

Female

Key exclusion criteria

1. No report of a live birth between 2003 and 2015
2. Missing data on diet
3. Missing data on gestational diabetes diagnosis
4. Implausible energy intake (ratio of reported energy intake and predicted energy requirement <0.56 or >1.44)
5. History of type 1 or type 2 diabetes mellitus prior to GDM diagnosis
6. History of GDM prior to baseline

Date of first enrolment

01/03/2017

Date of final enrolment

01/04/2017

Locations**Countries of recruitment**

Australia

Study participating centre

University of Queensland

Brisbane

Australia

4006

Sponsor information**Organisation**

University of Queensland

ROR

<https://ror.org/00rky9422>

Funder(s)

Funder type

Government

Funder Name

Department of Health, Australian Government

Alternative Name(s)

Australian Government Department of Health and Aged Care, Dept of Health & Aged Care, Department of Health, Australian Government Department of Health, The Department of Health, Australian Dept of Health & Aged Care, healthgovau, Department of Health and Aged Care · Aged Care, Department of Health and Aged Care, Australian Government, Australian Department of Health and Aged Care, Department of Health, Australian Government, Department of Health and Aged Care, The Department of Health and Aged Care, DHAC, DoHAC

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Australia

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated and/or analysed for this study will be available upon request. A request can be made by submitting an EOI form via the ALSWH website (<https://www.alsw.org.au/how-to-access-the-data/alsw-data>). The specific datasets and analysis of this registration belong to EOI A650 and can be requested after approval of the ALSWH scientific committee.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/08/2018		Yes	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes