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Dietary assessment during pregnancy: Perspectives from a nutritional phenotyping cohort

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- Nutritional phenotyping cohort
- Designed to examine:
 - Weight and body composition changes during pregnancy
 - Examine changes and their determinants, including diet and activity
 - Interrelationships between body composition and weight change trajectories, and how each relate to neonatal adiposity



Pregnancy measures

Dietary assessment

DHQ III - FFQ

ASA24H Recall

Body Composition

MRI, anthros, BIA, 3D scan

Weight at home (web-based scale)

Physical Activity

Actigraphy & questionnaire

Questionnaires & Biospecimens



Screening
6-14 wk



Visit 1
14 wk



Visit 2
24 wk



Visit 3
35 wk





Pregnancy measures

Dietary assessment

DHQ III - FFQ

ASA24H Recall

Block Fruit & Veggie Screener

Veggie Meter

Body Composition

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Screening
6-14 wk



Visit 1
14 wk



Visit 2
24 wk



Visit 3
35 wk





Dietary assessment

- Food frequency questionnaire
 - Only at 14 wk gestation
 - NCI Diet History Questionnaire (DHQ-III)
 - Assessing intake over the past month
 - Considerations
 - Debated past month vs. past year
 - Web-based
 - Cost



Image source: <https://epi.grants.cancer.gov/dhq3/>



Dietary assessment

- 24 hour recall
 - NCI Automated Self-administered 24 hour recall
 - 14, 24 and 35 wk gestation
 - One recall at each visit
 - Advise participants to complete on a normal day of eating
 - Considerations
 - Web based
 - Cost
 - Participant burden



ASA24

Automated Self-Administered 24-Hour Dietary Assessment Tool

Image source: <https://asa24.nci.nih.gov/>



Dietary assessment

- Brief veggie screener
 - 24 wk gestation
 - Block Fruit/Vegetable/Fiber Screener
 - Assessing intake in the past month
 - Brief screening tool
 - 7 questions about fruit and vegetable intake
 - 3 questions about foods high in fiber.
 - ~5 minutes to complete



Dietary assessment

- Veggie Meter®
 - 14, 24, 35 wk gestation
 - Reflectance spectroscopy
 - Assesses skin carotenoid status
 - Considerations
 - Rapid
 - Noninvasive

To add widenlab photo

Image source: Widen Lab

Veggie Meter®
Longevity Link Corporation

Other dietary related measures

- At all visits
 - Mindful Eating Questionnaire
 - US Adult Food Security Survey
- At 14 wk
 - Eating Disorder Diagnostic Scale (EDDS DSM-5)
- At 24 and 35 wk
 - Pica questions

Other dietary related measures

- Semi-structured qualitative interviews after COVID-19 pandemic
- How pandemic affected
 - Eating behaviors & diet
 - Activity
 - Mood & health

Other measures

- Prenatal outcomes, medications, complications
 - Separate medication and supplement questionnaire at each visit
 - General pregnancy questionnaire 35 wk visit
 - Specific conditions
 - GDM, hypertension/preeclampsia, anemia, IUGR, edema
 - Abstract prenatal care and hospital records
- Nausea & vomiting

Data cleaning and analysis considerations

- We're still actively collecting data, but we've come up with some initial guidelines
 - Check for missingness
 - Kcal cutpoints for implausible intakes
- Analytic considerations:
 - For ASA24 recalls, adjusting for weekend status
 - For DHQ and ASA24, considering season of intake
 - Compare results from each method

Take away

- Dietary assessment in intensive study
 - Best options for study logistics were web-based
 - Participant burden carefully considered
- Needs
 - Rapid assessment tools
 - Updated food databases
 - Integration of questions on nausea and vomiting into the web-based tools



WIDEN & LAB

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Thank you!

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