

2020 Dietary Guidelines Advisory Committee: DRAFT - Part D. Chapter 2: Pregnancy

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This chapter includes questions examined by the
Pregnancy and Lactation, Beverages and Added Sugars,
Dietary Fats and Seafood, and Frequency of Eating subcommittees

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INTRODUCTION (1 of 3)

- Pregnancy is a critical period of life for both a mother and her child.
- Physiological and metabolic changes that occur during pregnancy can predispose some women to developing sometimes life-threatening health conditions, such as gestational diabetes mellitus and hypertensive disorders.
- Excessive gestational weight gain is relatively common, particularly in women with a high prepregnancy BMI, and retention of excess body weight postpartum places a woman at higher risk for chronic diseases in subsequent pregnancies and later in life.

INTRODUCTION (2 of 3)

- The Developmental Origins of Health and Disease hypothesis posits that environmental exposures during early developmental stages increase the risk of developing metabolic and neurodegenerative disorders during later life.
- A mother's health and nutritional status during the first 1,000 days of an infant and child's life, beginning at conception and continuing through the second year of life, are crucial for ensuring optimal physical, social, and psychomotor growth and development and lifelong health.
- The *2020-2025 Dietary Guidelines for Americans* will take a lifespan approach with a new focus on the first 1,000 days of life and will specifically focus on pregnant and lactating women and infants from birth to 24 months.

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INTRODUCTION (3 of 3)

- The 2015 Dietary Guidelines Advisory Committee report included some discussion of nutrients of public health concern specific to women who are pregnant, and dietary patterns during pregnancy that are linked to risk of congenital anomalies, but it did not include a substantial emphasis on food or beverage intake and maternal-fetal outcomes of pregnancy.
- The systematic reviews included in this report are the first to assess questions that specifically examine relationships between food and beverage patterns or micronutrients during pregnancy and maternal-fetal outcomes that affect large groups of women and their children.

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LIST OF QUESTIONS (#1-5)

1. What is the relationship between **dietary patterns** consumed during pregnancy and risk of **gestational diabetes mellitus**?
2. What is the relationship between **dietary patterns** consumed during pregnancy and risk of **hypertensive disorders during pregnancy**?
3. What is the relationship between **dietary patterns** consumed during pregnancy and **gestational weight gain**?
4. What is the relationship between **frequency of eating** during pregnancy and **gestational weight gain**?
5. What is the relationship between **dietary patterns** during pregnancy and **gestational age at birth**?

LIST OF QUESTIONS (#6-9)

6. What is the relationship between **dietary patterns** consumed during pregnancy and **birth weight** standardized for gestational age and sex?
7. What is the relationship between **beverage consumption** during pregnancy and **birth weight** standardized for gestational age and sex?
8. What is the relationship between **maternal diet during pregnancy** and risk of child **food allergies and atopic allergic diseases, including atopic dermatitis, allergic rhinitis, and asthma**?
9. What is the relationship between **seafood consumption** during pregnancy and **neurocognitive development in the child**?

LIST OF QUESTIONS (#10-11)

10. What is the relationship between **omega-3 fatty acids from supplements** consumed before and during pregnancy and **developmental milestones, including neurocognitive development** in the child?
11. What is the relationship between **folic acid from supplements and/or fortified foods** consumed before and during pregnancy and 1) **maternal micronutrient status**, 2) **gestational diabetes**, 3) **hypertensive disorders**, 4) **human milk composition**, and 5) **neurocognitive development** in the child?

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METHODOLOGY

- Four of the systematic reviews included in this body of evidence, specifically those that examined the impact of dietary patterns during pregnancy on maternal and birth outcomes (**Questions 1, 2, 5 and 6**), were undertaken by the USDA and HHS as part of the Pregnancy and Birth to 24 Months Project.
 - These previously completed systematic reviews, which were published in 2019, were adopted by the 2020 Dietary Guidelines Advisory Committee as they directly addressed the questions given.
- Remaining questions (**3, 4, 7, 8, 9, 10, and 11**) were answered using new NESR systematic reviews.

REVIEW OF THE SCIENCE

- 65 draft conclusion statements across the 11 questions.
- Over 160 articles, representing over 110 studies, were included in the new NESR systematic reviews and 51 articles, representing 38 studies, were included in the existing NESR systematic reviews.
- Conclusion statements were graded from Strong to Grade Not Assignable, although the subcommittee was unable to grade most (69%) conclusion statements due to insufficient evidence.
- Notable gaps in research have been identified and specific research recommendations to address these gaps will be discussed in the report.

SUMMARY OF CONCLUSIONS (Questions 1-7)

Question	Grade*
1. DP before and during pregnancy and risk of GDM	• Before pregnancy (limited)
2. DP before and during pregnancy and risk of hypertensive disorders	• Before and during pregnancy in healthy White women (limited)
3. DP during pregnancy and GWG	• During pregnancy (limited)
4. <i>Frequency of eating</i> during pregnancy and GWG	• <i>No evidence</i>
5. DP before and during pregnancy and gestational age at birth	• During pregnancy (limited)
6. <i>DP before and during pregnancy and birthweight</i>	• <i>No conclusion for during pregnancy</i>
7. <i>Beverage consumption during pregnancy and birthweight</i>	• <i>Insufficient for any beverage</i>

* *All others: Insufficient or no evidence unless otherwise noted (Q4, 6 and 7)*

SUMMARY OF CONCLUSIONS (Question 8)

Question	Grade*
8. Maternal diet during pregnancy and:	<u>No Relationship or No Reduction in Risk</u>
<ul style="list-style-type: none"> • Food Allergy 	<ul style="list-style-type: none"> • Soy consumption (limited)
<ul style="list-style-type: none"> • Atopic Dermatitis 	<ul style="list-style-type: none"> • Lower/restricted cow milk products or egg (moderate) • Fish consumption (limited) • Dietary patterns (limited)
<ul style="list-style-type: none"> • Allergic Rhinitis 	<ul style="list-style-type: none"> • Lower/restricted egg (moderate) • Dietary patterns (limited)
<ul style="list-style-type: none"> • Asthma 	<ul style="list-style-type: none"> • Lower/restricted cow milk products (limited) • Fish or egg consumption (limited)

* *All others: Insufficient or no evidence*

SUMMARY OF CONCLUSIONS

(Questions 9-11)

Question	Grade*
9. Seafood consumption during pregnancy and neurocognitive outcomes	<ul style="list-style-type: none"> Favorable for cognitive development (moderate) Favorable for language and communication (limited)
10. Omega-3 FA from supplements during pregnancy and neurocognitive outcomes	<ul style="list-style-type: none"> Favorable for cognitive development (limited)
11. Folic acid supplements before or during pregnancy:	
<ul style="list-style-type: none"> Maternal folate status (serum, plasma, RBC) 	<ul style="list-style-type: none"> Positive association (strong)
<ul style="list-style-type: none"> Hypertensive disorders 	<ul style="list-style-type: none"> Reduced risk if consumed during early pregnancy by high risk women (limited) No benefit in low risk women (moderate)

****All others: Insufficient or no evidence***

DISCUSSION (1 of 3)

- The Committee found that certain dietary patterns are associated with a modest reduction in the risk of excessive gestational weight gain, gestational diabetes mellitus, hypertensive disorders, and preterm birth.
- The components of these dietary patterns align with dietary patterns associated with lower overall chronic disease risk in women who are not pregnant or lactating.

DISCUSSION (2 of 3)

Food Components of Dietary Patterns that are Associated with a Modest Reduction in Risk

Reduced Risk	Excessive GWG	GDM	Hypertensive Disorders	Gestational Age
Higher in:				
Vegetables	X	X	X	X
Fruits	X	X	X	X
Whole grains		X	X	X
Nuts	X	X	X	X
Legumes/Seeds	X	X	X	X
Fish	X	X	X	Preterm birth
Veg Oils			X	
Lower in:				
Red and processed meat	X	X	X (Specifically Processed Meat)	X
Refined grains			X	
Added sugars	X			
Fried Foods				X

DISCUSSION (3 of 3)

- Frequency of eating is a component of dietary patterns that may play a role in maternal-fetal outcomes of pregnancy.
 - The 1992 Implementation Guide for the 1990 Institute of Medicine gestational weight gain guidelines recommended that women who are pregnant eat 3 meals and 2 or more snacks each day. This eating pattern aims to ensure that women are able to consume the extra nutrients needed during pregnancy, while minimizing common gastrointestinal complaints.
- Existing literature suggests that eating patterns change during pregnancy, moving from a main-meal focused pattern during the second trimester to a snack-dominant pattern by the beginning of the third trimester.
- More research is needed to determine how frequency and macronutrient content of eating and drinking occasions affect gestational weight gain and other pregnancy outcomes.

SUMMARY (1 of 2)

- The evidence reviewed by the Committee reinforces the importance of nutrition for women of reproductive age and women who are pregnant for optimal maternal and fetal outcomes.
- Each of the 3 Food Patterns (**Healthy U.S.-Style; Healthy Vegetarian or Healthy Mediterranean-Style**) described in Chapter 14* is expected to meet nutrient needs for women who are pregnant with the possible exception of:
 - Choline
 - Iron
 - Vitamin D
 - Vitamin E

*see *Part D. Chapter 14-USDA Food Patterns for 2 Years and Older*

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SUMMARY (2 of 2)

- For some women who are pregnant, iron supplementation may be needed to meet iron needs.
- Folic acid supplementation improves maternal folate status and may reduce the risk of hypertensive disorders in high risk individuals.
 - Folic acid supplementation should begin prior to conception to reduce the risk of neural tube defects and hypertensive disorders.

SUMMARY: Draft Strategies for Women of Reproductive Age (#1 of 7 strategies)

1. Encourage women to achieve a healthy weight before pregnancy, and to strive for gestational weight gain within the 2009 Institute of Medicine's recommendations. Previous Committees have made this recommendation, and this Committee concurs. The increased energy needs during pregnancy can best be met through the consumption of a varied, nutrient-dense diet.

SUMMARY: Draft Strategies for Women of Reproductive Age (#2 and #3 of 7)

2. Encourage women before and during pregnancy to choose dietary patterns that are higher in vegetables, fruits, whole grains, nuts, legumes, seafood, and vegetable oils, and lower in added sugars, refined grains, and red and processed meats.
3. Encourage women to consume foods and beverages that are good sources of iron, folate, calcium, choline, magnesium, protein, fiber, and other potential shortfall nutrients.

SUMMARY: Draft Strategies for Women of Reproductive Age (#4 and #5 of 7)

4. Encourage women to not avoid potential allergenic foods during pregnancy unless it is medically warranted to protect the mother's health.
5. Encourage women who are pregnant to consume seafood in accordance with recommendations by the *2015-2020 Dietary Guidelines for Americans*, the Food and Drug Administration, and the Environmental Protection Agency: at least 8 and up to 12 ounces of a variety of seafood per week, from choices that are lower in methyl mercury.

SUMMARY: Draft Strategies for Women of Reproductive Age (#6 of 7)

6. Encourage women who are or may be pregnant to follow guidance from the *2015-2020 Dietary Guidelines for Americans* that “Women who are or who may be pregnant should not drink alcohol. Drinking during pregnancy, especially in the first few months of pregnancy, may result in negative behavioral or neurological consequences in the children. No safe level of alcohol consumption during pregnancy has been established.

SUMMARY: Draft Strategies for Women of Reproductive Age (#7 of 7)

7. Encourage women who are pregnant to select foods in accordance with food safety recommendations outlined in previous scientific reports of the Dietary Guidelines Advisory Committee and editions of the *Dietary Guidelines for Americans*, including avoiding unpasteurized milk and soft cheeses, undercooked meats, and limiting processed meats.

SUMMARY: Draft Support for Federal Programs

1. The Committee supports efforts by Federal programs, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), to encourage pregnant women to take advantage of available nutrition counseling services.
2. The Committee supports further development of surveillance systems and databases to report dietary and beverage intakes of diverse subgroups of women who are pregnant.

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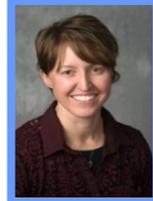
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