Understanding and Using the New 2020-2025 Dietary Guidelines for Americans

Webinar 2: Utilizing Evidence Gaps Identified by the 2020 Dietary Guidelines Advisory Committee (DGAC) Report to Inform Research Priorities
Speakers

Emily Callahan, MS
Analyst, Center for Nutrition Policy and Promotion
USDA Food and Nutrition Service

Regan Bailey, PhD, MPH, RD, CPH
Member, 2020 Dietary Guidelines Advisory Committee
Professor, Purdue University

Alice H. Lichtenstein, D.Sc.
Vice-Chair, 2015 Dietary Guidelines Advisory Committee
Member, 2000 Dietary Guidelines Advisory Committee
Professor, Tufts University

Moderator

Cheryl A.M. Anderson, PhD, MPH, MS
Member, 2015 Dietary Guidelines Advisory Committee
Professor, University of California San Diego
# Disclosures

<table>
<thead>
<tr>
<th>AFFILIATION/FINANCIAL INTERESTS (prior 12 months)</th>
<th>ENTITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants/Research Support</td>
<td>None</td>
</tr>
<tr>
<td>Scientific Advisory Board/Consultant/Board of Directors</td>
<td>None</td>
</tr>
<tr>
<td>Speakers Bureau</td>
<td>None</td>
</tr>
<tr>
<td>Stock Shareholder</td>
<td>None</td>
</tr>
<tr>
<td>Employee</td>
<td>University of California San Diego</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>
Learning Objectives

At the end of this program, attendees will be able to:

• Describe how the DGAC grades the available scientific evidence and identifies the paucity of data
• Detail topics requiring additional research or data
• Discuss methodological limitations and how they can be utilized to improve research design and methods
• Understand how to leverage the DGAC’s recommendations to inform their organization’s or laboratory’s research priorities
CPE Credit

• ASN designates this educational activity for a maximum of 1 CPEUs. Dietitians and Dietetic Technicians, Registered should only claim credit commensurate with the extent of their participation in the activity.

• To claim credit, please take the post webinar evaluation provided after the webinar.
Asking Questions

- Please use the “questions” box on your “Go To Meetings” screen to submit questions to our presenters.

- Please submit your questions at any time during today’s webinar.
Grading the Evidence & Identifying Data Gaps

Emily Callahan, MS
# Disclosures

## Affiliation/Financial Interests

<table>
<thead>
<tr>
<th>Grants/Research Support</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Advisory Board/Consultant/Board of Directors</td>
<td>None</td>
</tr>
<tr>
<td>Speakers Bureau</td>
<td>None</td>
</tr>
<tr>
<td>Stock Shareholder</td>
<td>None</td>
</tr>
<tr>
<td>Employee</td>
<td>U.S. Department of Agriculture</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>
Nesr Systematic Review Methodology

Nesr Systematic Review
Research project that answers a question on diet and health by searching for, evaluating, and synthesizing all relevant, peer-reviewed studies.

For more information on Nesr methodology visit: https://nesr.usda.gov/
Conclusion Statements

• A conclusion statement is a summary statement that reflects the body of evidence reviewed and is written as the answer to the systematic review question.

• A conclusion statement may also state that there is not enough evidence to answer the question.
The Committee used predetermined criteria to assign one of four grades to indicate the strength of the body of evidence supporting a specific conclusion statement:

- Strong
- Moderate
- Limited
- Grade not assignable
# NESR Criteria: Grading the Strength of the Evidence

## Risk of Bias

likelihood that systematic errors resulting from the design and conduct of the studies could have impacted the accuracy of the reported results

*Because risk of bias is assessed by study design, this grading element also allows for consideration of study design in the process of grading (i.e., randomized controlled trials, non-randomized controlled trials, and observational studies)*

## Consistency

degree of similarity in the direction and magnitude of effect, and whether any inconsistency can be explained by differences in study designs and methods

## Directness

how well the primary research studies are designed to address the systematic review question

## Precision

degree of certainty around an effect estimate for a given outcome, including sample size, number of studies, and variability within and across studies

## Generalizability

whether the study participants, interventions and/or exposures, comparators, and outcomes examined are applicable to the U.S. population

*Study design is also considered by examining these elements for each category of study design separately (e.g., randomized controlled trials, non-randomized controlled trials, and observational studies).*
Strong:
The conclusion statement is based on a strong body of evidence as assessed by risk of bias, consistency, directness, precision, and generalizability. The level of certainty in the conclusion is strong, such that if new evidence emerges, modifications to the conclusion are unlikely to be required.

Moderate:
The conclusion statement is based on a moderate body of evidence as assessed by risk of bias, consistency, directness, precision, and generalizability. The level of certainty in the conclusion is moderate, such that if new evidence emerges, modifications to the conclusion may be required.

Limited:
The conclusion statement is based on a limited body of evidence as assessed by risk of bias, consistency, directness, precision, and generalizability. The level of certainty in the conclusion is limited, such that if new evidence emerges, modifications to the conclusion are likely to be required.

Grade not assignable:
A conclusion statement cannot be drawn due to either a lack of evidence, or evidence that has severe limitations related to risk of bias, consistency, directness, precision, and/or generalizability.
<table>
<thead>
<tr>
<th>Question</th>
<th>Conclusion Statement</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the relationship between the frequency of eating and <strong>all-cause mortality</strong>?</td>
<td><strong>No evidence</strong> is available to determine the relationship between the frequency of eating and all-cause mortality.</td>
<td><strong>Grade not assignable</strong></td>
</tr>
<tr>
<td>What is the relationship between frequency of eating and <strong>growth, size, body composition, and risk of overweight and obesity</strong>?</td>
<td><strong>Insufficient evidence</strong> is available to determine the relationship between the frequency of eating and growth, size, and risk of overweight and obesity</td>
<td><strong>Grade not assignable</strong></td>
</tr>
<tr>
<td>Question</td>
<td>Conclusion Statement</td>
<td>Grade</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>What is the relationship between seafood consumption during pregnancy and lactation and neurocognitive development in the child?</td>
<td>Limited evidence suggests that seafood intake during pregnancy may be associated favorably with measures of language and communication development in the child.</td>
<td>Limited</td>
</tr>
<tr>
<td>Question</td>
<td>Conclusion Statement</td>
<td>Grade</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>What is the relationship between seafood consumption during pregnancy and lactation and neurocognitive development in the child?</td>
<td>Moderate evidence indicates that seafood intake during pregnancy is associated favorably with measures of cognitive development in young children.</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Moderate**
### Question
What is the relationship between types of fat consumed and risk of cardiovascular disease?

### Conclusion Statement
Strong and consistent evidence from randomized controlled trials demonstrates that replacing saturated fatty acids with unsaturated fats, especially polyunsaturated fatty acids, in adults significantly reduces total and low-density lipoprotein cholesterol. Replacing saturated fatty acids with carbohydrates (sources not defined) also reduces total and low-density lipoprotein cholesterol, but significantly increases triglycerides and reduces high-density lipoprotein cholesterol. Since the 2015 Dietary Guidelines Advisory Committee review, evidence remains inadequate to differentiate among sources of carbohydrate and their impact on blood lipids.

### Grade
Strong
Research Recommendations: Identifying Gaps

- Research recommendations are identified at every step of the systematic review process to address gaps and limitations in the evidence.
- These recommendations serve to highlight research needs as well as identify areas that will help to answer related systematic review questions in the future.
The systematic reviews along with detailed methodology for the 2020 Dietary Guidelines Advisory Committee are available at: https://nesr.usda.gov/2020-dietary-guidelines-advisory-committee-systematic-reviews

Tune into the last webinar in this series which will detail the NESR approach and provide recommendations for utilizing the NESR methodology as a guide when designing and publishing research: Wednesday, March 10th from 1 – 2 PM EST
How Future Research Needs Were Identified & How This Research May Inform Future Dietary Guidelines

Regan Bailey, PhD, MPH, RD, CPH
Disclosures

<table>
<thead>
<tr>
<th>AFFILIATION/FINANCIAL INTERESTS (prior 12 months)</th>
<th>ENTITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants/Research Support</td>
<td>NIH; USAID; Indiana CTSI</td>
</tr>
<tr>
<td>Scientific Advisory Board/Consultant/Board of Directors</td>
<td>International Food Information Council</td>
</tr>
<tr>
<td>Speakers Bureau</td>
<td>None</td>
</tr>
<tr>
<td>Stock Shareholder</td>
<td>None</td>
</tr>
<tr>
<td>Employee</td>
<td>Purdue University</td>
</tr>
<tr>
<td>Other</td>
<td>When people traveled, I received travel expenses to attend scientific conferences and present my research</td>
</tr>
</tbody>
</table>
Future Research Needs

- Federal
  - Surveillance and Monitoring Programs
  - Research Funding

- Non-Federal
  - Conducting, improving, and strengthening research
Research and Other Funding Needs

• Coordination of research funding to address the questions posed to the DGAC will require considerable coordination at the Federal level
  o Funding priorities aligned across many agencies
Research and Other Funding Needs

• Coordination of research funding to address the questions posed to the DGAC will require considerable coordination at the Federal level
  o Funding priorities aligned across many agencies

• Funding and coordination of updates to the Dietary Reference Intakes, especially in certain life stages
Research and Other Funding Needs

• Coordination of research funding to address the questions posed to the DGAC will require considerable coordination at the Federal level
  o Funding priorities aligned across many agencies

• Funding and coordination of updates to the Dietary Reference Intakes, especially in certain life stages

• Updates to databases to reflect diversity of the American diet, cultural foods, more comprehensive for human milk
Research and Other Funding Needs

• Coordination of research funding to address the questions posed to the DGAC will require considerable coordination at the Federal level
  o Funding priorities aligned across many agencies

• Funding and coordination of updates to the Dietary Reference Intakes, especially in certain life stages

• Updates to databases to reflect diversity of the American diet, cultural foods, more comprehensive for human milk

• Tools and technologies
Research and Other Funding Needs

• Coordination of research funding to address the questions posed to the DGAC will require considerable coordination at the Federal level
  o Funding priorities aligned across many agencies

• Funding and coordination of updates to the Dietary Reference Intakes, especially in certain life stages

• Updates to databases to reflect diversity of the American diet, cultural foods, more comprehensive for human milk

• Tools and technologies

• Federal programs that provide food or influence behaviors
Needs and Gaps: Data Analysis

• Standardize definitions of life stages at the Federal level
Needs and Gaps: Data Analysis

• Standardize definitions of life stages at the Federal level
• Develop HEI for those less than 2 years
Needs and Gaps: Data Analysis

- Standardize definitions of life stages at the Federal level
- Develop HEI for those less than 2 years
- External ways to examine diet quality independent of HEI
Needs and Gaps: Data Analysis

- Standardize definitions of life stages at the Federal level
- Develop HEI for those less than 2 years
- External ways to examine diet quality independent of HEI
- Identify what dietary patterns exist

Data source for Healthy Eating Index scores: What We Eat in American, National Health and Nutrition Examination Survey. (Undated data are from 2015-2016).
Needs and Gaps: Data Analysis

- Standardize definitions of life stages at the Federal level
- Develop HEI for those less than 2 years
- External ways to examine diet quality independent of HEI
- Identify what dietary patterns exist
- Additional data on beverage patterns are needed
Needs and Gaps: Data Analysis

- Standardize definitions of life stages at the Federal level
- Develop HEI for those less than 2 years
- External ways to examine diet quality independent of HEI
- Identify what dietary patterns exist
- Additional data on beverage patterns are needed
- Over sampling populations where little data are available, especially for dietary intakes and nutritional biomarkers

(i.e. infants and toddlers, reproductive-aged females, pregnant and lactating women, certain race and ethnic groups, food security statues).
A process is needed to identify topics that can be carried forward into a future cycle of the DGA without additional review by the advisory committee.
Research Needs: General

- Dietary assessment is a critical need across all sectors
  - Multiple measurements needed for cross-sectional and cohort studies
Research Needs: General

• Dietary assessment is a critical need across all sectors
  • Multiple measurements needed for cross-sectional and cohort studies

• Standardization of terms and tools (by consensus panels?)
  • Understanding complexity of the diet
Research Needs: General

• Dietary assessment is a critical need across all sectors
  • Multiple measurements needed for cross-sectional and cohort studies

• Standardization of terms and tools
  • Understanding complexity of the diet

• Look at the lists of covariates in the existing NESR frameworks, much additional information should be collected on the population being studies
Health and Nutrition Covariates

Environmental
- i.e.: sex, age, race and ethnic origin, menopausal status, acute (e.g., gestational diabetes) and chronic disease (e.g., cardiovascular disease) or validated surrogate markers (e.g., hypertension), body size and composition (e.g., BMI, lean muscle, waist circumference, SAD, adiposity, bone), medications, physical limitations, depression, IQ, etc.

Biological & Genetic
- i.e.: maternal age, maternal body composition, family history, birth order, parity, length of gestation, birthweight, mode of delivery, critical windows of exposure, fetal growth rate, etc.

Demographic
- i.e.: family income, income, PIR, food security, food assistance, education (parental or self), marital status, etc.

Social & Life-style
- i.e.: physical activity, sedentariness, tobacco exposure (primary or secondary), alcohol exposure, degree of urbanicity, etc.

Economic
- i.e.: “background diet” (energy intake, ratios, proportions, patterns, amounts, types, frequency), use of dietary supplements, mode of infant feeding, in utero exposure to GDM or high BP, environmental contaminants, etc.
Research Need: General

• Dietary assessment is a critical need across all sectors
  • Multiple measurements needed for cross-sectional and cohort studies

• Standardization of terms and tools

• Look at the lists of covariates in the existing NESR frameworks, much additional information should be collected on the population being studies

• Systems-based approaches to examine multi-level social ecological determinants of dietary exposures
Research Need: General

• Dietary assessment is a critical need across all sectors
  • Multiple measurements needed for cross-sectional and cohort studies
• Standardization of terms and tools
• Look at the lists of covariates in the existing NESR frameworks, much additional information should be collected on the population being studies
• Systems-based approaches to examine multi-level social ecological determinants of dietary exposures
• All the -omes and -omics
Research Need: General

- Dietary assessment is a critical need across all sectors
  - Multiple measurements needed for cross-sectional and cohort studies
- Standardization of terms and tools
- Look at the lists of covariates in the existing NESR frameworks, much additional information should be collected on the population being studies
- Systems-based approaches to examine multi-level social ecological determinants of dietary exposures
- All the -omes and -omics
- Immune function
How To Leverage DGAC Recommendations to Inform Research Priorities

Alice H. Lichtenstein, D.Sc.
## Disclosures

<table>
<thead>
<tr>
<th>AFFILIATION/FINANCIAL INTERESTS (prior 12 months)</th>
<th>ENTITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants/Research Support</td>
<td>NIH, USDA, Hass Avocado Board</td>
</tr>
<tr>
<td>Scientific Advisory Board/Consultant/Board of Directors</td>
<td>None</td>
</tr>
<tr>
<td>Speakers Bureau</td>
<td>None</td>
</tr>
<tr>
<td>Stock Shareholder</td>
<td>None</td>
</tr>
<tr>
<td>Employee</td>
<td>Tufts University</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>
DGAC Recommendations – 2000 vs. 2020


To the Secretary of Health and Human Services and the Secretary of Agriculture

Table of Contents

Letter to the Secretaries ................................................................. iv
Dietary Guidelines Advisory Committee Membership ................................ viii
Charge to the Committee and Committee Activities ................................ viii
Proposed Dietary Guidelines for Americans ........................................ 1
Discussion of Proposed Changes ..................................................... 20
Other Recommendations ....................................................................... 62
Appendix I: History of the Dietary Guidelines for Americans ................. 67
Appendix II: Summary of Recommendations from Public Comments ........ 69
2000 DGAC Report – Recommendations

Improving the Review Process

Filling Information Gaps
- Diet and Health Outcomes
- Monitoring
- Design of Educational Tools
2000 DGAC Report – Recommendations

Improving the Review Process

Provide more information about specific users and uses of the *Dietary Guidelines* to help inform future DGAC about *how best to approach the development of specific guidelines*.

DGAC Report - Improving the Review Process

https://www.nap.edu/download/24883
Sept 2017

https://www.nap.edu/download/24637
Sept 2017
2000 DGAC Report – Recommendations

Improving the Review Process

Improve definition of the *interrelationship between the Food Guide Pyramid and Dietary Guidelines*
Support for Activities Related to the *Dietary Guidelines*

Identify *collaborative efforts across the Federal government* …
2000 DGAC Report – Recommendations

Filling Information Gaps

- Diet and Health Outcomes
- Monitoring
- Design of Educational Tools

Diet and Health Outcomes

- … evaluate short- and long-term benefits of adherence to the Dietary Guidelines, …
- Improve our understanding of overweight and obesity, …, and risks and benefits of their treatment.
- Conduct population studies to assess health outcomes related to the intake of different levels, types, and sources of dietary carbohydrates.

Diet and Health Outcomes

- Determine the optimal *ratios between fat and carbohydrate* for the American diet.
- Determine the optimal *fatty acid composition* of the diet.
- Evaluate the role of the *Dietary Guidelines* in promoting improved *calcium* status among at-risk populations.

2000 DGAC Report – Recommendations

Diet and Health Outcomes

- Explore potential mechanisms that account for the decreased risks of chronic or degenerative diseases that are attributable to *whole grain and fruit and vegetable* …

- Conduct studies on the appropriateness of population-wide recommendations related to *sodium* intake.

- Improve our understanding of the risks and benefits of moderate levels of *alcohol* consumption in relevant age groups.

2020 DGAC Report

The New York Times

U.S. Diet Guidelines Sidestep Scientific Advice to Cut Sugar and Alcohol

December 29, 2020

New dietary guidelines still show signs of industry influence

BY THOMAS GREMILLION, OPINION CONTRIBUTOR — 01/23/21 01:00 PM EST
THE VIEWS EXPRESSED BY CONTRIBUTORS ARE THEIR OWN AND NOT THE VIEW OF THE HILL
... integrate systems science approaches, including consideration of dietary patterns, in treating and managing **diet-related conditions and disorders**, such as type 2 diabetes, obesity, and cardiovascular disease (CVD).
2000 DGAC Report – Recommendations

Monitoring

- Continue to *monitor dietary intakes* and health outcomes.

2020 DGAC Report – Future Directions

Support for Federal Data – National Health and Nutrition Examination Survey (NHANES), What We Eat in America (WWEIA)

- Expand diversity and sample size of underreported populations
- Include biomarker data
- Improve dietary assessment methods that can more accurately estimate energy intakes

https://www.dietaryguidelines.gov/2020-advisory-committee-report
Design of Educational Tools

- Take steps to harmonize the information on the Nutrition Facts Label with the Food Guide Pyramid, …
2000 DGAC Report – Recommendations

Nutrition Facts

<table>
<thead>
<tr>
<th>Serving size</th>
<th>2/3 cup (55g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>230</td>
</tr>
<tr>
<td>% Daily Value*</td>
<td></td>
</tr>
<tr>
<td>Total Fat</td>
<td>8g 10%</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>1g 5%</td>
</tr>
<tr>
<td>Trans Fat</td>
<td>0g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0mg 0%</td>
</tr>
<tr>
<td>Sodium</td>
<td>160mg 7%</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>37g 13%</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>4g 14%</td>
</tr>
<tr>
<td>Total Sugars</td>
<td>12g</td>
</tr>
<tr>
<td>Includes 10g Added Sugars</td>
<td>20%</td>
</tr>
<tr>
<td>Protein</td>
<td>3g</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>2mcg 10%</td>
</tr>
<tr>
<td>Calcium</td>
<td>260mg 20%</td>
</tr>
<tr>
<td>Iron</td>
<td>8mg 45%</td>
</tr>
<tr>
<td>Potassium</td>
<td>240mg 6%</td>
</tr>
</tbody>
</table>

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.
Design of Educational Tools

- Conduct intervention studies to guide the development of strategies, educational tools, and programs designed to help change dietary patterns at the individual and population levels.

Develop tools and technologies to help individuals manage weight and analyze and plan their diets.
2020 DGAC Report – Additional Issues

- Updates to existing DRIs are urgently needed.
- Support efforts to consider the *Dietary Guidelines* in relation to sustainability of the food system.
- Address numerous gaps related to infants and children.
2025 DGAC

where do we go from here?
Discussion
Join Us!

Webinar 3: Designing, Implementing and Presenting Research to be Reviewed by the 2020 Dietary Guidelines Advisory Committee

Wednesday, March 10th 1-2 PM EST
Special Thanks To

nutrition demand
This webinar series is brought to you by the ASN Foundation. **Your donation to the ASN Foundation** helps advance the science, education, and practice of nutrition.