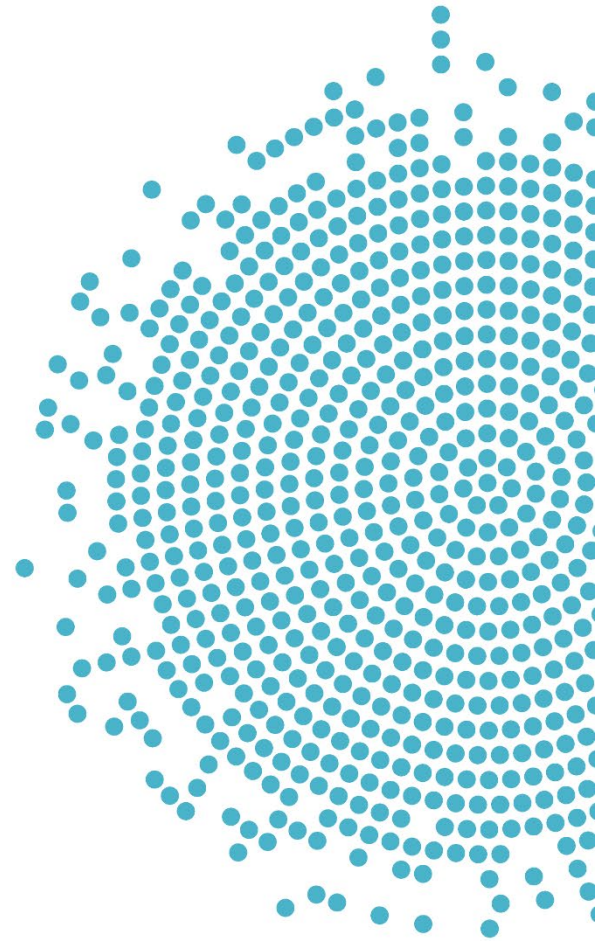


# Culturally Tailored Dietary Interventions and Diet-Related Psychosocial Factors, Dietary Intake, Diet Quality, and Health Outcomes: An Evidence Scan Protocol

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## Introduction

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To prepare for the development of the *Dietary Guidelines for Americans, 2025-2030*, the U.S. Departments of Health and Human Services (HHS) and Agriculture (USDA) identified a proposed list of scientific questions based on relevance, importance, potential federal impact, and avoiding duplication, which were posted for public comment.\* The Departments appointed the 2025 Dietary Guidelines Advisory Committee (Committee) in January 2023 to review evidence on the scientific questions. The proposed scientific questions were refined and prioritized by the Committee for consideration in their review of the evidence. Their review forms the basis of their independent, science-based advice and recommendations to HHS and USDA, which is considered as the Departments develop the next edition of the *Dietary Guidelines*. In addition, the Committee was asked to review all of the scientific questions with a health equity lens to ensure that the next edition of the *Dietary Guidelines* is relevant to people with diverse racial, ethnic, socioeconomic, and cultural backgrounds.

Federal data show that Americans fall short of meeting Dietary Guidelines recommendations, and diet-related chronic disease rates have risen to pervasive levels and continue to be a major public health concern. Therefore, when refining and prioritizing scientific questions, the Committee expressed interest in understanding food-based strategies that can improve adherence to the *Dietary Guidelines*, particularly among diverse populations. For example, the *Dietary Guidelines for Americans, 2020-2025* includes the following key recommendation: “Customize and enjoy nutrient-dense food and beverage choices to reflect personal preferences, cultural traditions, and budgetary considerations.” Culturally tailored dietary intervention studies, which emphasize consuming traditional foods and/or the availability of traditional foods in the surrounding environment of a given population, have been conducted to examine their impact on dietary intake and health. Yet, at this time the breadth of these interventions in the scientific literature is unclear.

The Committee will conduct an evidence scan to address these research needs, in collaboration with USDA’s Nutrition Evidence Systematic Review (NESR) team (**Table 1**).

**Table 1. Review history**

Date	Description	Citation
October 2023	Evidence scan protocol for the 2025 Dietary Guidelines Advisory Committee published online	Palacios C, Anderson CAM, Andres A, Fisher JO, Gardner CD, Giovannucci E, Hoelscher DM, Jernigan VBB, Odoms-Young A, Raynor HA, Stanford FC, Obbagy J, Callahan EH, Cole NC, Fultz A, Kingshipp BJ, Webster A, Higgins M, Butera G, Terry N. Culturally Tailored Dietary Interventions and Diet-Related Psychosocial Factors, Dietary Intake, Diet Quality, and Health Outcomes: An Evidence Scan Protocol. September 2023. U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review. Available at: <a href="https://nesr.usda.gov/protocols">https://nesr.usda.gov/protocols</a>

A NESR evidence scan is an exploratory evidence description project in which systematic methods are used to search for and describe the volume and characteristics of evidence available on a nutrition question or topic of public health importance.

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\* Dietary Guidelines for Americans: Learn About the Process. 2022. Available at: <https://www.dietaryguidelines.gov/work-under-way/learn-about-process>

The following scientific question has been identified for this evidence scan: What evidence has been published on the relationship between culturally tailored dietary interventions and diet-related psychosocial factors, dietary intake, diet quality, and health outcomes?

## Methods

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The NESR methodology manual<sup>\*</sup> has a detailed description of the NESR methodology as it will be applied in the evidence scan for the Dietary Guidelines for Americans, 2025-2030 Project. This section presents an overview of the specific methods that will be used to by the Committee to answer the evidence scan question: What evidence has been published on the relationship between culturally tailored dietary interventions and diet-related psychosocial factors, dietary intake, diet quality, and health outcomes?

### Develop a protocol

An evidence scan protocol is the plan for how NESR's methodology will be used to conduct a specific evidence scan and is established by the Committee, *a priori*, before any evidence is reviewed. The protocol is designed to capture the most appropriate and relevant body of evidence to answer the evidence scan question. Development of the protocol involves discussion of the strengths and limitations of various methodological approaches relevant to the question, which then inform subsequent steps of the evidence scan process. The protocol describes all of the methods that will be used throughout the evidence scan process. Additionally, the protocol includes the following components, which are tailored to each evidence scan question: the analytic framework, the inclusion and exclusion criteria, and the description of evidence plan.

### Develop an analytic framework

An analytic framework visually represents the overall scope of the evidence scan question and depicts the contributing elements that will be examined and evaluated. **Figure 1** is the analytic framework for the evidence scan and shows that the interventions of interest are those that have been culturally tailored, modified, or adapted to alter intake of foods in children, adolescents, adults, older adults, and individuals during pregnancy and postpartum. The outcomes are Diet-related psychosocial factors including food-related norms, attitudes, values, and self-efficacy; Dietary intake; Diet quality; Energy intake; Risk factors for cardiovascular disease (CVD), including: cholesterol (HDL, LDL), triglycerides, hyperlipidemia, blood pressure (systolic and diastolic), hypertension; and Risk factors for type 2 diabetes (T2D), including: fasting blood glucose, fasting insulin, glucose tolerance/insulin resistance, hemoglobin A1c, prediabetes in children, adolescents, adults, and older adults; Growth (in children and adolescents) including: height, weight, stunting, failure to thrive, wasting, BMI-for-age, body circumferences (arm, neck, thigh); Body composition (in children, adolescents, adults, older adults) including: skinfold thickness, fat mass, ectopic fat, fat-free mass or lean mass, waist circumference, waist-to-hip-ratio; Risk of obesity (in children, adolescents, adults, older adults) including: BMI, underweight, normal weight, overweight and/or obesity, weight gain, and weight loss and maintenance (in adults and older adults); Pregnancy and postpartum-related weight change (in individuals during pregnancy or postpartum) including: adequacy of total gestational weight gain (i.e., in relation to recommendations based on pre-pregnancy BMI) and postpartum weight change.

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<sup>\*</sup> USDA Nutrition Evidence Systematic Review Branch. USDA Nutrition Evidence Systematic Review: Methodology Manual. February 2023. U.S. Department of Agriculture, Food and Nutrition Service, Center for Nutrition Policy and Promotion, Nutrition Evidence Systematic Review. Available at: <https://nesr.usda.gov/methodology-overview>

**Figure 1. Analytic framework for the evidence scan question: What evidence has been published on the relationship between culturally tailored dietary interventions and diet-related psychosocial factors, dietary intake, diet quality, and health outcomes?**

<i>Population</i>	<i>Intervention</i>	<i>Outcome</i>
<p>Children and adolescents (2 up to 19 years)</p> <hr/> <p>Adults and older adults (19 years and older)</p>	<p>Interventions that have been culturally tailored, modified, or adapted to alter intake of foods</p>	<p>Diet-related psychosocial factors, including food-related norms, attitudes, values, and self-efficacy</p> <p>Dietary intake</p> <p>Diet quality</p> <p>Energy intake</p> <p>Risk of CVD</p> <ul style="list-style-type: none"> <li>• HDL cholesterol</li> <li>• LDL cholesterol</li> <li>• Triglycerides</li> <li>• Hyperlipidemia</li> <li>• Blood pressure (systolic, diastolic)</li> <li>• Hypertension</li> </ul> <p>Risk of T2D</p> <ul style="list-style-type: none"> <li>• Fasting blood glucose</li> <li>• Fasting insulin</li> <li>• Glucose tolerance/insulin resistance</li> <li>• HbA1C</li> <li>• Prediabetes</li> </ul> <p>Growth (in children and adolescents):</p> <ul style="list-style-type: none"> <li>• Height</li> <li>• Weight</li> <li>• Stunting, failure to thrive, wasting</li> <li>• BMI-for-age</li> <li>• Body circumference (arm, neck, thigh)</li> </ul> <p>Body composition (in children and adolescents, adults and older adults):</p> <ul style="list-style-type: none"> <li>• Skinfold thickness</li> <li>• Fat mass, ectopic fat</li> <li>• Fat-free mass or lean mass</li> <li>• Waist circumference, waist-to-hip-ratio</li> </ul> <p>Risk of obesity (in children and adolescents, adults and older adults):</p> <ul style="list-style-type: none"> <li>• BMI</li> <li>• Underweight</li> <li>• Normal weight</li> <li>• Overweight and/or obesity</li> <li>• Weight gain</li> <li>• Weight loss and maintenance (adults and older adults only)</li> </ul>

<b>Population</b>	<b>Intervention</b>	<b>Outcome</b>
Individuals during pregnancy and postpartum		Diet-related psychosocial factors, dietary intake, diet quality, and energy intake as described above.  Pregnancy and postpartum-related weight change <ul style="list-style-type: none"> <li>• Gestational weight gain</li> <li>• Postpartum weight change</li> </ul>

## Develop inclusion and exclusion criteria

The inclusion and exclusion criteria provide an objective, consistent, and transparent framework for determining which articles to include in the evidence scan (see **Table 2**). These criteria ensure that the most relevant and appropriate body of evidence is identified for the evidence scan question, and that the evidence reviewed is:

- Applicable to the U.S. population of interest
- Relevant to Federal public health nutrition policies and programs
- Rigorous from a scientific perspective

**Table 2. Inclusion and exclusion criteria**

<b>Category</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
Study design	<ul style="list-style-type: none"> <li>• Randomized controlled trials</li> <li>• Non-randomized controlled trials*</li> </ul>	<ul style="list-style-type: none"> <li>• Uncontrolled trials†</li> <li>• Case-control studies</li> <li>• Cross-sectional studies</li> <li>• Ecological studies</li> <li>• Narrative reviews</li> <li>• Systematic reviews</li> <li>• Meta-analyses</li> <li>• Modeling and simulation studies</li> <li>• Prospective cohort studies</li> <li>• Retrospective cohort studies</li> <li>• Nested case-control studies</li> </ul>
Publication date	<ul style="list-style-type: none"> <li>• January 1980 – September 2023</li> </ul>	<ul style="list-style-type: none"> <li>• Before January 1980, after September 2023</li> </ul>
Population: Study participants	<ul style="list-style-type: none"> <li>• Human</li> <li>• People living in the United States or Canada</li> </ul>	<ul style="list-style-type: none"> <li>• Non-human</li> <li>• People living outside of the United States or Canada</li> </ul>

\* Including quasi-experimental and controlled before-and-after studies

† Including uncontrolled before-and-after studies

Category	Inclusion Criteria	Exclusion Criteria
Population: Life stage	<p><b>Diet-related psychosocial factors; dietary intake; diet quality; energy intake; growth, body composition, and risk of obesity:</b></p> <ul style="list-style-type: none"> <li>At intervention and outcome:                             <ul style="list-style-type: none"> <li>Children and adolescents (2 up to 19 years)</li> <li>Adults and older adults (19 years and older)</li> <li>Individuals during pregnancy</li> <li>Individuals during postpartum</li> </ul> </li> </ul> <p><b>Risk of CVD and Risk of T2D:</b></p> <ul style="list-style-type: none"> <li>At intervention and outcome:                             <ul style="list-style-type: none"> <li>Children and adolescents (2 up to 19 years)</li> <li>Adults and older adults (19 years and older)</li> </ul> </li> <li>At intervention:                             <ul style="list-style-type: none"> <li>Individuals during pregnancy</li> <li>Individuals during postpartum</li> </ul> </li> </ul>	<p>At intervention and outcome:</p> <ul style="list-style-type: none"> <li>Infants and toddlers (birth up to 24 months)</li> </ul> <p><b>Risk of CVD and Risk of T2D:</b></p> <ul style="list-style-type: none"> <li>At outcome:                             <ul style="list-style-type: none"> <li>Individuals during pregnancy</li> <li>Individuals during postpartum</li> </ul> </li> </ul>
Population: Health status	<ul style="list-style-type: none"> <li>Studies that <u>exclusively</u> enroll participants not diagnosed with a disease*</li> <li>Studies that enroll <u>some</u> participants:                             <ul style="list-style-type: none"> <li>diagnosed with a disease;</li> <li>with severe undernutrition, failure to thrive/underweight, stunting, or wasting;</li> <li>who became pregnant using Assisted Reproductive Technologies;</li> <li>with multiple gestation pregnancies;</li> <li>receiving pharmacotherapy to treat obesity;</li> <li>pre- or post-bariatric surgery;</li> <li>and/or hospitalized for an illness, injury, or surgery</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Studies that <u>exclusively</u> enroll participants:                             <ul style="list-style-type: none"> <li>diagnosed with a disease;†</li> <li>with severe undernutrition, failure to thrive/underweight, stunting, or wasting;</li> <li>who became pregnant using Assisted Reproductive Technologies;</li> <li>with multiple gestation pregnancies;</li> <li>receiving pharmacotherapy to treat obesity;</li> <li>pre- or post-bariatric surgery;</li> <li>and/or hospitalized for an illness, injury, or surgery‡</li> </ul> </li> </ul>
Intervention	<ul style="list-style-type: none"> <li>Interventions that have been culturally tailored, modified, or adapted to alter intake of foods</li> </ul>	<ul style="list-style-type: none"> <li>Studies with interventions that have not been culturally tailored, modified, or adapted</li> <li>Studies with interventions that change consumption of a single food</li> </ul>
Comparator	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>No comparator</li> </ul>

\* Studies that enroll participants who are at risk for chronic disease will be included

† Studies that exclusively enroll participants with obesity will be included

‡ Studies that exclusively enroll participants post-cesarean section will be included



Category	Inclusion Criteria	Exclusion Criteria
Outcomes	<p>Diet-related psychosocial factors, including food-related norms, attitudes, values, and self-efficacy</p> <p>Dietary intake assessed by intake of foods or food group(s)</p> <p>Diet quality</p> <p>Energy intake</p> <p>Risk of CVD</p> <ul style="list-style-type: none"> <li>• LDL cholesterol</li> <li>• HDL cholesterol</li> <li>• Triglycerides</li> <li>• Hyperlipidemia</li> <li>• Blood pressure (systolic, diastolic)</li> <li>• Hypertension</li> </ul> <p>Risk of T2D</p> <ul style="list-style-type: none"> <li>• Fasting blood glucose</li> <li>• Fasting insulin</li> <li>• Glucose tolerance/insulin resistance</li> <li>• HbA1C</li> <li>• Prediabetes</li> </ul> <p>Growth (in children, adolescents)</p> <ul style="list-style-type: none"> <li>• Height</li> <li>• Weight</li> <li>• Stunting, failure to thrive, wasting</li> <li>• BMI-for-age</li> <li>• Body circumferences (arm, neck, thigh)</li> </ul> <p>Body composition (in children, adolescents, adults, older adults)</p> <ul style="list-style-type: none"> <li>• Skinfold thickness</li> <li>• Fat mass, ectopic fat</li> <li>• Fat-free mass, lean mass</li> <li>• Waist circumference, waist-to-hip ratio</li> </ul> <p>Risk of obesity (in children, adolescents, adults, older adults)</p> <ul style="list-style-type: none"> <li>• BMI</li> <li>• Underweight</li> <li>• Normal weight</li> <li>• Overweight and/or obesity</li> <li>• Weight gain</li> <li>• Weight loss and maintenance (in adults, older adults)</li> </ul> <p>Pregnancy- and postpartum-related weight change (adults during pregnancy or postpartum)</p> <ul style="list-style-type: none"> <li>• Adequacy of total gestational weight gain (i.e., in relation to recommendations based on pre-pregnancy BMI)</li> <li>• Postpartum weight change</li> </ul>	<ul style="list-style-type: none"> <li>• Dietary intake assessed only by intake of individual nutrient(s)</li> <li>• Urinary measures of glucose</li> <li>• Non-fasting blood glucose</li> <li>• Non-fasting insulin</li> <li>• Gestational weight gain only during certain time periods or trimesters of pregnancy</li> <li>• Absolute total gestational weight gain (i.e., not in relation to recommendations based on pre-pregnancy BMI)</li> <li>• Weight loss that is specifically classified as unintentional weight loss (e.g., a component of frailty)</li> </ul>
Publication status	<ul style="list-style-type: none"> <li>• Peer-reviewed articles published in research journals</li> </ul>	<ul style="list-style-type: none"> <li>• Non-peer-reviewed articles, unpublished data or manuscripts, pre-prints, reports, editorials, retracted articles, and conference abstracts or proceedings</li> </ul>
Language	<ul style="list-style-type: none"> <li>• Published in English</li> </ul>	<ul style="list-style-type: none"> <li>• Not published in English</li> </ul>

Category	Inclusion Criteria	Exclusion Criteria
Country	<ul style="list-style-type: none"><li>• Studies conducted in the United States and/or Canada</li></ul>	<ul style="list-style-type: none"><li>• Studies conducted outside of the United States or Canada</li></ul>

## Search for and screen studies

NESR librarians, in collaboration with NESR analysts and the Committee, will use the analytic framework and inclusion and exclusion criteria to develop a comprehensive literature search strategy. The literature search strategy will include selecting and searching the appropriate bibliographic databases, translating search using syntax appropriate for the databases being searched, and employing search refinements, such as search filters. The full literature search will be available upon request and will be fully documented in the final evidence scan.

The screening of electronic database search results will be facilitated using a web-based tool (DistillerSR, DistillerSR Inc., Ottawa, Ontario, Canada) and screening forms that will be developed based on the inclusion and exclusion criteria in this evidence scan protocol. After removal of duplicates, a re-ranking function will be utilized in DistillerSR to reorder articles by relevancy. Two NESR analysts will independently screen titles and abstracts of search results up to a 75% recall rate of citations eligible for full-text screening, as assessed by DistillerSR's artificial intelligence (AI) capabilities. We will then move to a single screener up to a 90% recall rate. NESR analysts will stop screening citations remaining past this 90% recall rate of citations eligible for full-text screening. Two NESR analysts will independently perform full-text screening to determine if inclusion criteria are met. Differences in screening decisions will be resolved by consultation with a third NESR analyst.

## Extract data

NESR analysts will extract the most essential data from each included article to describe key characteristics of the available evidence, such as the author, publication year, study design, population life stage, intervention, approach and methods for cultural tailoring, comparator, and outcomes. One NESR analyst will extract the data and a second NESR analyst will review the extracted data for accuracy.

## Description of the evidence

The description of the evidence will include a detailed description of the volume and characteristics (population, intervention, comparator, outcome) of the included evidence. Evidence scan elements may be presented in text, figures, and/or tables.

## Considerations for future work

NESR analysts and Committee members will identify and document research gaps and methodological limitations throughout the evidence scan process. These gaps and limitations will be used to develop research recommendations that describe the research, data, and methodological advances that are needed to strengthen the body of evidence on a particular topic. Rationales for the necessity of additional or stronger research may also be provided with the research recommendations.

## Acknowledgments and funding

The Committee members are involved in: establishing all aspects of the protocol, which presents the plan for how they are planning to examine the scientific evidence, including the inclusion and exclusion criteria; reviewing all studies that meet the criteria the Committee sets; and deliberating on the body of evidence for

each question. The NESR team, with assistance from Federal staff from HHS and USDA (Meghan Adler, MS, RDN; Dana DeSilva, PhD, RD; Emily Levin, MPH, RDN; Chinwe Obudulu, MS, RD, LD; Elizabeth Rahavi, RD) and Project Leadership (HHS: Janet de Jesus, MS, RD; USDA: Eve Stoodly, PhD), supports the Committee by facilitating, executing, and documenting the work necessary to ensure the reviews and evidence scans are completed in accordance with NESR methodology.

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