Office of Nutrition Research

Strategic Plan

2026–2030
FISCAL YEARS

National Institutes of Health
Office of Nutrition Research

FOREWORD

FOREWORD

Nutrition is central to the human experience. It is not just about food; rather, it is the biology connecting the food we eat to our health. Nutrition is also very complex—it is influenced by the many factors that make up our internal and external environments, our "ecology." Modern nutrition science recognizes and embraces these complexities as extraordinary research opportunities for improving health. It is clear there is no one-size-fits-all strategy for how, when, and what to eat to be and stay healthy.

New technologies and teams of researchers from many fields are illuminating the factors that make up the nutritional ecology and the links between development, health status, diet, genetics, behavior, and the worlds we each live in. That information will be valuable to inform choices for everyone—not only individuals and families, but also the food and agricultural industries, the health care system, and policymakers.

The Office of Nutrition Research (ONR), located within the Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI) in the Office of the Director at the National Institutes of Health (NIH), promotes innovative research to expand our understanding of the complexities of nutrition, its biology, and its role in health promotion, disease prevention, and treatment across the lifespan. ONR fulfills its mission in a highly collaborative way, creating and sustaining connections within NIH, across federal agencies, and with external partners to enable rigorous nutrition research that is the foundation for guiding optimal health for all Americans.

Dr. Andrew A. Bremer has led ONR since September 2023. In this strategic plan, which complements the *2020–2030 Strategic Plan for NIH Nutrition Research*, he and the ONR team outline a visionary framework for advancing and coordinating nutrition research. To confront the urgent crisis of diet-related chronic diseases, this *ONR FY 2026–2030 Strategic Plan* prioritizes scientific discovery, enhanced precision, and rigor and reproducibility in nutrition science and welcomes extensive collaboration to accomplish its goals.

Why is it so important that ONR prioritize scientific discovery and innovation to inform assessment, surveillance, and precision in the nutrition research enterprise? Because we still don't know all the connections between food and health. This bold plan establishes a blueprint for the highest caliber of nutrition science research across NIH and the federal government with the goal of addressing the burden of diet-related chronic diseases and improving America's health.

I am confident that Dr. Bremer will lead his dedicated team, who are committed to the American public, to implement this strategic plan toward elevating nutrition science to new heights and thereby improve the health of our nation.

Nicole C. Kleinstreuer, Ph.D.
Acting NIH Deputy Director for Program Coordination, Planning, and Strategic Initiatives,
and Acting Director, DPCPSI
April 2025

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A Message from the Director

Nutrition is everyone's business—not only because everyone eats, but because nutrition is tightly linked to every aspect of biology and human health. Nutrition touches every cell and every system in our bodies at every age and every stage of life. This intrinsic biological connection between the food we eat and our health places the National Institutes of Health (NIH) Office of Nutrition Research (ONR) at the forefront of improving America's health.

Nutrition science is at an exciting and urgent inflection point. America is facing a nutrition-related health crisis. Malnutrition—in all its forms (ranging from undernutrition to micronutrient deficiencies and overweight/obesity and, increasingly, the paradoxical combination of both)—is now the leading cause of illness and death in the world. Relatedly, a suboptimal diet is the leading modifiable risk factor for death—more so than tobacco smoking, air pollution, and high blood pressure. In our country, diet-related conditions threaten our public health, the economy, and national security; they are estimated to lead to the death of about 15,000 Americans every week and cost the U.S. economy more than $1.1 trillion every year.

We see this crisis as an urgent call to action. To reverse these trends and improve public health, we need answers about how nutrition drives health or causes disease, as well as how nutrition can be leveraged as prevention and treatment. Gone are the days that focused narrowly on macro- and micronutrients in isolation; instead, we now appreciate the importance of dietary patterns on health and health outcomes—as well as interactions between how, what, and when we eat with our internal and external environments. Expanding the concept of nutrition from a one-dimensional construct focused mainly on food to an ecological system of moving parts creates a more accurate picture of the complexities of nutrition. By embracing these complexities, modern nutrition science can solve difficult and deadly health problems caused by the diet-related chronic diseases that affect millions of American children and adults.

In this strategic plan, ONR outlines a vision that considers nutrition as central to whole person health from the first to last days of life, as well as across generations. Addressing diet-related chronic diseases in children and adults requires an all-hands-on-deck approach. Within NIH, ONR is taking the lead by identifying emerging scientific opportunities, rising public health challenges, and scientific gaps in the field of nutrition. Given the foundational role of nutrition in biology and health, everyone at NIH has a stake in advancing nutrition research.

We take seriously our charge and responsibility to maximize the return on investment from public dollars that fund nutrition research across NIH and the federal government. Stewardship of resources is one of our four strategic goals. Moreover, we must insist on rigor, reproducibility, transparency, and unbiased science. Improving the precision of nutritional assessment and incorporating nutritional status broadly into biomedical research advances this goal and will revolutionize how people perceive nutrition science.

Going forward, we need methods that are measurable, accurate, predictive—and trustworthy. Doing so is critical for the uptake of emerging concepts such as Food Is Medicine, precision nutrition, and other efforts to understand how nutrition interacts with food systems, the food environment, and health more broadly. This new way of thinking also opens the door for research opportunities that can address and provide solutions for the many complex problems our country faces today and will face in the future.

There is no time to waste. Guided by this plan, ONR will stimulate actionable, credible, and solution-focused research across the entire translational spectrum—from discovery to implementation—focusing on the role of nutrition in the continuum of efforts to develop evidence-informed programs, practices, and policies. ONR adds value to the nutrition enterprise by determining what is known and what is not known about the role of diet and nutrition in health and disease—as well as how nutrition can be both a prevention and therapeutic strategy. By providing subject-matter expertise, access to specialized and technical resources, and coordination that stimulates unique collaborations, ONR fuels the generation of evidence needed to inform decision-makers.

In this strategic plan, which complements and adds to the *2020–2030 Strategic Plan for NIH Nutrition Research*, we outline our research agenda, priorities, and goals. We highlight the potential for new opportunities by bringing a fresh perspective and expanded focus on nutrition as a broad and dynamic ecosystem. We also spotlight the type of research that is required to move the biomedical field forward.

I am proud of what ONR has done to date, and I am even more excited about what we will do going forward to make America healthy. Now is the time to embrace the complexities of nutrition through a whole person approach, working together toward a better future for all Americans.

Andrew A. Bremer, M.D., Ph.D., M.A.S.
Director
Office of Nutrition Research

INTRODUCTION

Nutrition is more than food.

Introduction

We are what we eat—and more. Food weaves a thread through the very fabric of human culture, history, family, and personal memory. But nutrition is more than food. Nutrition represents the set of biological endpoints due to the food we eat; it is also a major thread in research at every Institute, Center, and Office (ICO) at NIH. Because of the fundamental biological connection between food, nutrition, and health, coordination of nutrition research across NIH is essential. This is ONR's expertise.

ONR prioritizes the need for actionable and solution-focused research, from basic discovery science to implementation and health services research. Nutrition is central to whole person health, and we consider rigorous nutrition science research essential to advance evidence-informed health programs, practices, and policies.

The office adheres to the following guiding principles:

- Food and nutrition are central to the human experience, as they represent critical components of a complex interaction between our internal (genetics, life stage, health status) and external (home, community, physical) environments (i.e., our ecology).
- Nutrition connects food to physical and mental health.
- The biology of nutrition touches every cell and system in our bodies—at every age and stage of life—and thus is inextricably linked to all aspects of health and disease.
- Nutritional status, the biological measure reflecting these relationships, is a fundamental biological variable—like age and sex—reflecting its central role in health and disease.

Food weaves a thread through the very fabric of human culture, history, family, and personal memory.

ONR's unique role at NIH and within the federal government is to inspire research to provide the fundamental knowledge and evidence base needed to address and inform high-priority questions about the role of diet and nutrition to promote health and to prevent, manage, and treat disease. ONR is the linchpin for nutrition research at NIH and beyond.

This strategic plan outlines ONR's research agenda, priorities, and goals for fiscal years (FYs) 2026–2030. It also highlights the type of rigorous research required to generate the evidence that will lead to prevention and treatment strategies for deadly diet-related diseases. This more inclusive approach to biomedical research will benefit the health of individuals, families, communities, and nations—both now and in the future.

ONR Vision, Mission, Goal, Strategy, and Values

ONR leads the future of nutrition science as evidenced by its vision, mission, and values.

Vision:

Advance nutrition science for the health of this and future generations.

Values:

Integrity, Curiosity, Teamwork, Communication, Transparency, Growth

Mission:

Stimulate innovative research to address the complexities of nutrition, its ecology, and its critical role in health across the lifespan for all.

Goal:

Reinforce the integral role of nutrition in all aspects of human biology, health, and disease. Achieving this goal will:

- Improve the precision of assessment and attribution of one's nutritional status to support clinical and public health interventions.
- Provide the evidence base to develop context-specific, culturally appropriate, resilient, and sustainable solutions to address priority health outcomes across the lifespan.

Strategy:

Serve as a synergistic hub across NIH, the federal government, and nongovernment multisectoral partners to support the nutrition research agenda. This will be accomplished through:

- Service
- Technical support and assistance
- Coordination

Office of Nutrition Research Vision, Mission, Goal, Strategy, and Values

Conceptual Framework

We are facing an urgent nutrition-related health crisis, and malnutrition in all its forms is the leading cause of illness and death in the world. In the United States, poor-quality diets threaten public health, the economy, and national security. Suboptimal diets (insufficient or poor quality) are also responsible for more deaths globally than any other risk factor, and as many Americans die each year from diet-related chronic diseases as did during the entire American Civil War and World War II combined.

ONR leads NIH, as well as the federal government and external partners, to stimulate actionable and solution-focused research that the American public can trust to guide what and how they eat. This charge addresses key elements of the need for research that will inform context-specific, resilient, and sustainable solutions related to diet, nutrition, and health priorities. By integrating the conceptual framework of a nutritional ecology and incorporating nutritional status as a fundamental biological variable into the biomedical research enterprise, ONR will collaboratively advance nutrition science. These efforts across NIH and the federal government and with external partners will transform discoveries into actions and actions into practical advice and policies.

A major goal for ONR is to improve the rigor and reliability of nutritional assessment, attribution, and interventions, which is necessary to optimize precision nutrition and Food Is Medicine efforts. ONR is strategic and collaborative, supporting research that complements and synergizes with—but does not overlap with or duplicate—other NIH or federal government efforts.

ONR is committed to addressing priority issues in public health and nutrition. Central to improving the American diet are new and evidence-informed assessment methods and interventions. Modernizing the nutrition science research agenda is also vital to stay apace with emerging scientific opportunities. These range from basic innovations such as spatial "omics" and artificial intelligence (AI) to community-based participatory research that engages individuals and communities as true partners. This strategic plan is also complementary and additive to the *2020–2030 Strategic Plan for NIH Nutrition Research*.

BOX 1

The *ONR FY 2026–2030 Strategic Plan* and the *2020–2030 Strategic Plan for NIH Nutrition Research*

The *ONR FY 2026–2030 Strategic Plan* both complements and adds to the *2020–2030 Strategic Plan for NIH Nutrition Research*. Released in 2020, the first NIH-wide strategic plan for nutrition research emphasizes crosscutting, innovative opportunities to advance nutrition research across a wide range of areas, from basic science to experimental design to research training. The plan is organized around a unifying vision of precision nutrition research and includes four strategic goals and five crosscutting research areas. These opportunities complement and enhance ongoing research efforts across NIH to improve health and to prevent or treat diseases and conditions affected by nutrition.

Strategic Goal 1	Spur Discovery and Innovation Through Foundational Research— ***What do we eat, and how does it affect us?***
Strategic Goal 2	Investigate the Role of Dietary Patterns and Behaviors for Optimal Health— ***What and when should we eat?***
Strategic Goal 3	Define the Role of Nutrition Across the Lifespan— ***How does what we eat promote health across our lifespan?***
Strategic Goal 4	Reduce the Burden of Disease in Clinical Settings— ***How can we improve the use of food as medicine?***

Crosscutting Research Areas:

- Health Disparities
- Health of Women
- Rigor and Reproducibility
- Data Science, Systems Science, and Artificial Intelligence
- Training the Scientific Workforce

Strategic Plan Framework

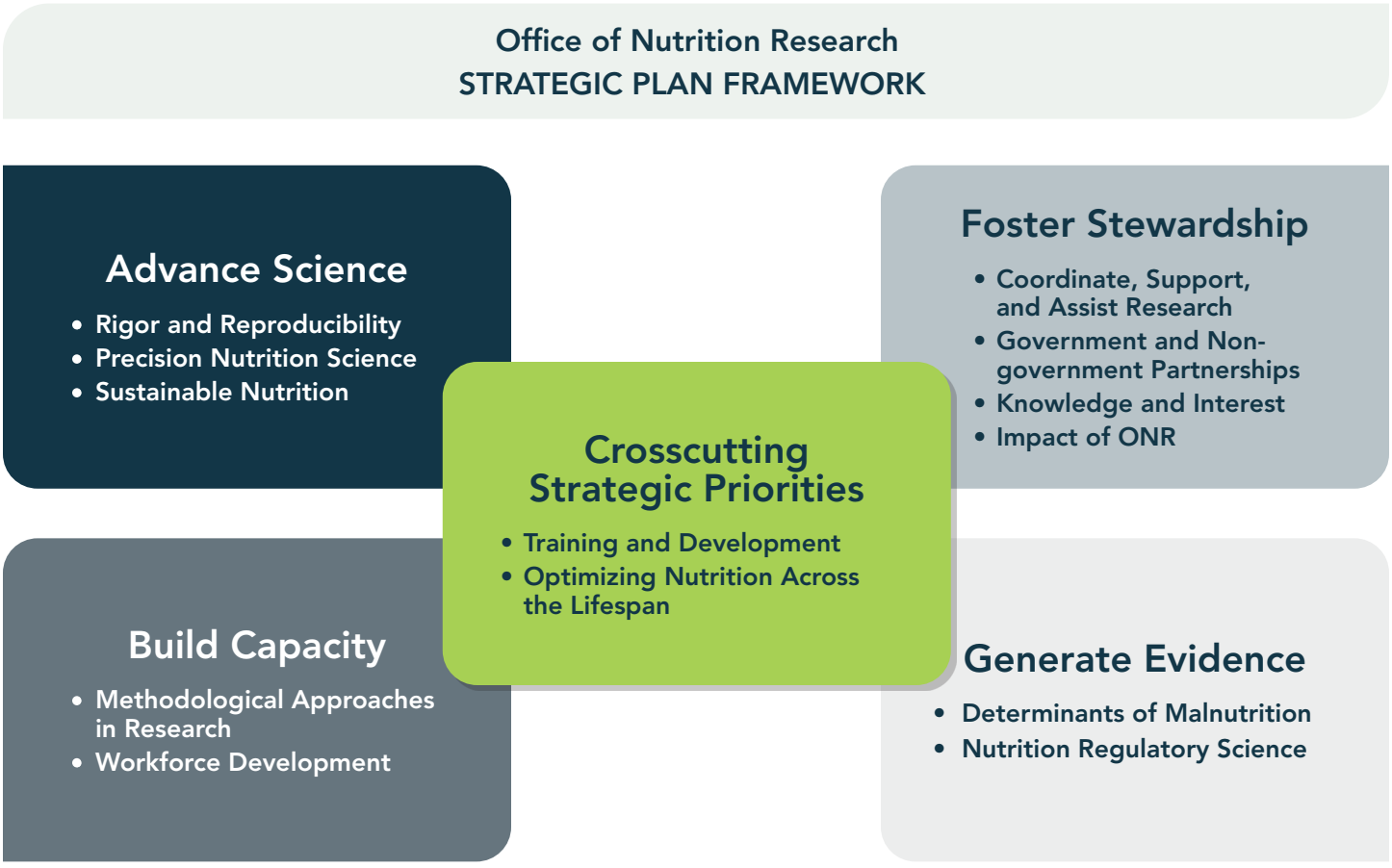
The four overarching strategic goals in the *ONR FY 2026–2030 Strategic Plan* are to:

- Advance Science
- Support the Generation of Evidence to Address Priority Diet, Nutrition, and Health Outcomes
- Build Capacity and Strengthen the Field of Nutrition Science
- Foster Stewardship, Collaboration, Transparency, and Accountability in Nutrition Science Research

Each goal is supported by focused objectives to direct ONR's implementation of its initiatives.

ONR will also address two crosscutting strategic priorities that affect each area of nutrition science:

- Training and Development
- Optimizing Nutrition Across the Lifespan



Office of Nutrition Research Strategic Plan Framework

Office of Nutrition Research Strategic Plan, FY 2026-2030 Goals and Objectives

Goal 1: Advance Science

Research Objective 1	Improve the Rigor and Reproducibility of Biomedical Research to Advance the Fundamental Understanding of the Biology of Nutrition and Its Functional Role in Critical Systems Involved in Health and Disease
Research Objective 2	Enhance the Precision of Nutrition Science
Research Objective 3	Advance the Understanding of Sustainable Nutrition in a Changing Environment

Goal 2: Support the Generation of Evidence to Address Priority Diet, Nutrition, and Health Outcomes

Impact Objective 1	Improve the Approaches and the Precision of Methods to Assess the Determinants of Malnutrition
Impact Objective 2	Support the Generation of Evidence to Enhance Nutrition Regulatory Science

Goal 3: Build Capacity and Strengthen the Field of Nutrition Science

Capacity Objective 1	Optimize the Methodological Approaches in the Design, Conduct, and Interpretation of Nutrition Science Research
Capacity Objective 2	Build Capacity and Enhance Development Across the Nutrition Science Workforce

Goal 4: Foster Stewardship, Collaboration, Transparency, and Accountability in Nutrition Science Research

Stewardship Objective 1	Coordinate and Provide Service, Technical Support, and Assistance for Nutrition Science Research Across NIH and Other Government Entities
Stewardship Objective 2	Engage in Collaborative Relationships with Relevant Nongovernment Partners
Stewardship Objective 3	Increase Knowledge and Generate Interest in Nutrition Science
Stewardship Objective 4	Expand the Impact of ONR Activities, Programs, and Capabilities

Implementation and Priority Setting

This strategic plan establishes a practical, solution-based framework to advance and coordinate nutrition research with the explicit goal of improving the health and well-being of all Americans. Implementation of this plan requires extensive collaboration across NIH and the federal government to accomplish all the objectives outlined in the four strategic goals. This work will be accomplished through dedicated service, detailed technical support and assistance, and well-coordinated teamwork. Through these alliances, ONR is committed to identifying and addressing priority issues in public health and nutrition. Translational research and the development of new and evidence-informed assessment methods and interventions have the potential to both improve clinical care and drive scientific discovery in the many research domains touched by human nutrition. Importantly, this work will align with, and augment, ongoing progress related to the *2020–2030 Strategic Plan for NIH Nutrition Research*.

By providing an opportunity to inform and be informed by each other, NIH- and government-wide collaborations and public–private partnerships are vital for establishing nutrition science research priorities that will drive context-specific solutions for diet-related chronic diseases. These reciprocal collaborations are also critical for efficient use of resources and generating information that Americans can trust.

Aligned with the modern view of nutrition as a dynamic ecosystem, ONR uses a holistic, whole person health lens to frame research questions. Because nutrition connects food and health, it is affected not only by internal factors, such as an individual's genetics and microbiome, but also by external factors, such as the physical, social, and psychological environments that affect people's lives. Other key external elements include food systems and the food environment, which are critical factors affecting consumer choices; dietary patterns; and, ultimately, health. Using this framework, ONR—in collaboration with other federal agencies addressing food—will address critical components of the nutritional ecology—such as the shaping and impact of consumer attitudes, beliefs, and behaviors regarding food systems—and consider key questions to identify knowledge gaps in nutrition science that have direct bearing on diet-related chronic diseases. Depending on the issue, population, or interventional target, topical areas may include:

- Food production
- Food distribution and marketing
- Food delivery
- Food Is Medicine interventions
- Brain–body interactions
- Cooking and nutrition education
- Personalized and precision nutrition interventions

This strategic plan was developed through an iterative process in which ONR staff identified and refined areas of health need and scientific opportunity. Factors that informed the research priorities included public health needs, scientific opportunities, and portfolio balance. The plan also benefited from peer review and feedback from subject-matter experts in the many scientific disciplines relevant to modern nutrition science. The four strategic goals, their cognate objectives, and the two crosscutting strategic priorities emerged from this process. Briefly, steps included:

- Review of research progress and gaps, followed by subject-matter expert feedback
- Refinement of the ONR vision and mission statements, goals, objectives, and strategic priorities
- Review by the NIH Office of Evaluation, Performance, and Reporting and other subject-matter experts
- Feedback and approval from NIH leadership

Leveraging Partnerships

Realizing the goals of the *ONR FY 2026–2030 Strategic Plan* hinges on many partnerships across NIH and the federal government, along with external organizations and the private sector. Through leadership and participation in numerous crosscutting committees and working groups, ONR identifies emerging scientific opportunities, rising public health challenges, and scientific gaps in nutrition science. ONR plays a critical coordinating role to ensure efficiency and to maximize the return on investment from public dollars that fund nutrition research across NIH and the federal government. Through our role as providers of technical support and coordination, ONR reinforces the notion of the reciprocal relationships we have with other partners in terms of informing and being informed to identify what we know, what is actionable, and where the scientific gaps are. ONR serves as both a recipient and provider of technical input to inform what is needed.

NIH ICOs address specific translational components of diet, nutrition, and health. These include safe and efficacious use of dietary supplements, the impact of diet and nutrition on infectious and noncommunicable diseases, and the role of diet and nutrition in specific populations. ONR's unique and synergistic role is to stimulate the research needed to provide the fundamental underpinning for these activities through an appreciation of the importance of the biology and ecology of nutrition to promote health and to prevent and treat disease. As such, ONR plays an integral role in fulfilling the core mission of NIH and its biomedical research agenda, as well as in guiding the development of evidence-informed programs, interventions, and standards of care addressing priority public health challenges related to diet and nutrition.

The ONR Director chairs the Nutrition Research Coordinating Committee (NRCC) and is a Co-Executive Secretary for the Interagency Committee on Human Nutrition Research (ICHNR). The ICHNR has a broad charge that includes planning, coordination, and communication among federal agencies involved with human nutrition research, as well as developing plans for federal research programs to meet the current and future nutritional needs of the nation. ONR also leverages expertise through involvement with the NRCC (with broad representation from NIH ICOs and other federal agencies) and the NIH ONR Senior Leadership Group. The latter advises the ONR Director and NIH ICO leadership about nutrition research topics; shares NIH ICO-specific programmatic activities related to nutrition to identify approaches to facilitate agencywide collaboration; and proposes, reviews, and facilitates collaboration on initiatives or NIH-wide projects to implement the *2020–2030 Strategic Plan for NIH Nutrition Research.*

STRATEGIC GOALS

Creating a Nutrition Science Research Agenda

Goal 1: Advance Science

Research Objective 1: Improve the Rigor and Reproducibility of Biomedical Research to Advance the Fundamental Understanding of the Biology of Nutrition and Its Functional Role in Critical Systems Involved in Health and Disease

Rigor and reproducibility are essential for the value and credibility of all biomedical research. Including nutrition scientists in the design, conduct, analysis, data interpretation, and communication processes across biomedical research ensures that nutrition is considered in the context of any health-related research. Standardizing and harmonizing nutrition research methods, measures, and data-capture processes will facilitate the comparison of results across research studies. Going forward, improving the rigor of these measures will lessen variability, increase reproducibility, and foster trust.

Research Objective 2: Enhance the Precision of Nutrition Science

The goal of precision nutrition is to provide tailored dietary advice based on individual or group characteristics. Precision nutrition is the unifying theme of the *2020–2030 Strategic Plan for NIH Nutrition Research.* To date, the results of clinical trials demonstrate considerable variability between individuals (and even within individuals) in response to virtually all diet and nutrition interventions. This variability exists even for research findings based on population-averaged health outcomes. Identifying factors that predict inter- and intra-individual variability will likely decrease the burden of diet-related chronic diseases and conditions and will also offer ways to tailor interventions for individuals and populations. Furthermore, ONR will enhance the precision of nutrition science by considering nutritional status a fundamental biological variable in biomedical research.

ONR also recognizes the need to better understand how to assess nutritional status in individuals from different populations. These include populations with health disparities; racial and ethnic minority groups; those from rural communities, those with lower socioeconomic status, and those with disabilities; and people of different age, sex, geographic location, and health status.

Research Objective 3: Advance the Understanding of Sustainable Nutrition in a Changing Environment

Nutrition is not limited to food and diet. Nutritional assessment must also include all the factors that influence our health. Recognizing nutrition as part of a holistic ecosystem, ONR adopts the conceptual framework of a nutritional ecology. In this framework, humans are complex biological systems affected by both internal factors (physiology, genetics, the microbiome, health context, developmental stage) and external factors (household, community, school, environment). This framework expands the study of nutrition beyond a reductionist focus on single nutrients to include food, dietary patterns, and the expansive nutriome (the pattern of nutrients and analytes and their interrelationships in biological systems).

In individuals and populations, sustainable nutrition may be defined as the ability to maintain a nutritional status that will support growth, development, and health throughout the life course and that is achievable by recognizing the synergies between the needs of the target population, their unique health context, and factors affecting the capacity of the food systems required to meet those needs. ONR will advance our understanding of sustainable nutrition by addressing the reciprocal and complex relationships between human health and food systems, the food environment, dietary patterns, nutrition, and the environment.

Goal 2: Support the Generation of Evidence to Address Priority Diet, Nutrition, and Health Outcomes

Impact Objective 1: Improve the Approaches and the Precision of Methods to Assess the Determinants of Malnutrition

Malnutrition has traditionally been thought of as undernutrition of both macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals). However, malnutrition is not limited to a lack of nutritious foods. Viewing nutrition in an ecological context can distinguish between malnutrition due to dietary insufficiency versus malnutrition due to some other physiological response that may have many possible causes. Considering nutrition in this way also provides an opportunity to identify both a problem and its cause. For example, poor nutritional status may be the result of food insecurity, a clinical condition, or a medication response. Biological, social, and lifestyle factors may also be at play. Nutritional status may further affect susceptibility to and treatment for a health condition, or it may be an outcome of that condition. Each scenario presents unique challenges for the diagnosis and care of malnutrition, and the implications of these challenges are not well known.

Standardized use of validated tools to assess and diagnose malnutrition across the care continuum from prevention to treatment is lacking. ONR will support the Assessing Determinants of Malnutrition—Implications for Treatment (ADMIT) project to address this objective. Importantly, ONR will assess the determinants of malnutrition in all its forms, including hunger, undernutrition (stunting and wasting), micronutrient deficiencies, and overweight/obesity.

Impact Objective 2: Support the Generation of Evidence to Enhance Nutrition Regulatory Science

America continues to face high rates of illness and death from diet-related diseases. Although the U.S. Food and Drug Administration (FDA) has partial responsibility to address this concern, critical evidence and data gaps remain. There is an urgent need to support rigorously conducted science to build the evidence base to inform food regulators in a credible way that people can trust.

The intersection of science with regulatory decision-making is timely, as exemplified by a recent ONR-sponsored joint NIH-FDA Nutrition Regulatory Science Workshop. This December 2024 workshop explored how nutrition science can generate evidence and data to inform food-related policy and regulatory decision-making. Developing a framework to capitalize on the synergies between existing NIH infrastructure, data, and research resources with FDA knowledge and expertise will generate the required evidence and data to inform FDA food-related regulatory decision-making to yield broad public health benefits.

Goal 3: Build Capacity and Strengthen the Field of Nutrition Science

Capacity Objective 1: Optimize Methodological Approaches in the Design, Conduct, and Interpretation of Nutrition Science Research

Nutrition plays an integral role in human development and in disease prevention and treatment. However, there is no such thing as a perfect, one-size-fits-all diet. Incorporating nutritional assessment as a fundamental biological variable in biomedical research is necessary to increase rigor, reproducibility, and transparency, as well as to support the development of evidence-informed standards of care.

The NIH Common Fund's *Nutrition for Precision Health, powered by the All of Us Research Program (NPH)* builds upon recent advances in biomedical science, including AI, microbiome research, and the infrastructure and large participant group in the *All of Us* Research Program. This research provides unprecedented opportunities to understand precision nutrition.

NPH is the first large ancillary study of the *All of Us* Research Program and is designed to answer scientific questions important to participants, such as understanding more about the role of nutrition in their everyday lives and overall health. Continued support of high-quality nutrition studies, such as NPH, will help individuals from all walks of life and their health care providers develop individualized dietary patterns that meet and optimize their health.

NPH was designed to implement aspects of the *2020–2030 Strategic Plan for NIH Nutrition Research.* Specifically, NPH is exploring how individuals respond to different diets. NPH researchers are studying interactions between diet, genes, proteins, the microbiome, metabolism, and other individual contextual factors. The data will be used to develop AI-based algorithms that will predict individual responses to foods and dietary patterns.

Capacity Objective 2: Build Capacity and Enhance Development Across the Nutrition Science Workforce

Building capacity in the nutrition science workforce includes increasing the number and enhancing the development of nutrition scientists and registered dietitians/registered dietitian nutritionists. As outlined in the *2020–2030 Strategic Plan for NIH Nutrition Research,* a strong nutrition workforce is critical for improving human health, including achieving the necessary cultural shifts facing nutrition science. The strategic goals in this plan point to the need for many skill sets and multidisciplinary research teams to address diet-related health problems. This foundational research will clarify roles and interactions among nutrients, dietary patterns, and health (note: most individuals have more than one health condition). One example of ONR's activity in this area is the Advanced Training in Artificial Intelligence for Precision Nutrition Science Research (AIPrN) Institutional Research Training Program, launched in 2023. The goal of this program is to provide trainees with interdisciplinary research training in AI, systems biology, systems science, big data, and computational analytics to address challenges in reducing diet-related diseases.

Goal 4: Foster Stewardship, Collaboration, Transparency, and Accountability in Nutrition Science Research

Stewardship Objective 1: Coordinate and Provide Service, Technical Support, and Assistance for Nutrition Science Research Across NIH and Other Government Entities

To be practical and effective, public health policies and procedures must incorporate the most accurate and relevant information about nutrition science. ONR subject-matter experts act as key service providers to achieve this goal in response to requests for nutrition research information. Advising NIH leadership and other key officials across the federal government on matters related to nutrition is central to advancing the missions of NIH and other federal agencies and offices.

ONR also leads the Nutrition Education Subcommittee of the NRCC, which reviews lay-friendly nutrition education publications and related materials available to the American public. This group ensures that nutrition-related information is scientifically and technically accurate and that it aligns with the Dietary Guidelines for Americans.

BOX 2

Nutrition Science Research Groups Across NIH and the Federal Government

- Interagency Committee on Human Nutrition Research
- NIH-FDA Joint Leadership Council's Joint Agency Nutrition Working Group
- Food Is Medicine Federal Agencies Working Group

Furthermore, ONR Nutrition Science thematic working groups respond to the needs and priorities of NIH ICOs and the federal government to identify and address key nutrition-related research gaps and opportunities. These groups provide service and technical support within NIH and across the federal government. Each group uses the conceptual framework of a nutritional ecology—addressing how food, health, and the environment are all connected in each particular focus area.

Stewardship Objective 2: Engage in Collaborative Relationships with Relevant Nongovernment Partners

As noted throughout this plan, nutrition is part of a complex ecosystem spanning individuals, communities, food systems, and the food environments to which people have access. Given the expanding range of health-influencing factors, increasing expectations from health systems, and enduring resource challenges, the government alone cannot provide all the health services people need. Therefore, providing health care for communities requires collaboration between government and nongovernmental organizations (NGOs).

BOX 3

Examples of Nongovernment Partners

- American Society for Nutrition
- Academy of Nutrition and Dietetics
- NIH–Gates Foundation Nutrition Working Group
- National Collaborative on Childhood Obesity Research

Through active engagement and outreach activities, ONR will inspire new connections, partnerships, and collaborations that allow for the exchange of valuable information and sharing of ideas and effort. ONR will connect with NGOs to increase awareness of high-quality nutrition research activities, accomplishments, and ongoing efforts that keep Americans healthy. Establishing and maintaining these relationships will also generate opportunities for NIH-supported research scientists to participate in and present findings at workshops, seminars, and other nutrition research–related events. Working strategically with NGOs and their constituencies with an interest in nutrition research is crucial for keeping Americans informed. Open flow of credible research results is essential to foster transparency and the public trust required to improve the American diet.

Stewardship Objective 3: Increase Knowledge and Generate Interest in Nutrition Science

The centrality of nutrition in human health is not well understood by the American public, biomedical research community, and health care system—a challenge that must be overcome. ONR will improve the availability and visibility of information about nutrition science research; promote nutrition science–related events conducted by NIH and other federal agencies; inform ONR audiences about the scope, impact, challenges, and gaps in nutrition science research; and work with partners to foster opportunities to enhance and support ONR's mission. ONR will continue to communicate advances in nutrition science, including those emerging from NPH.

Strategic outreach and bidirectional communication are essential to share nutrition science results with the American public. Clear communication is also essential to connect nutrition science experts, attract and identify potential new partners, and stimulate innovative collaborative efforts. ONR identifies and connects with interested audiences to share information about progress, findings, gaps, and future opportunities in nutrition science research. These connections are targeted to NIH ICOs, federal agencies, extramural researchers, nutrition experts, students and trainees, professional societies, and the public. These combined efforts establish ONR and NIH as a credible source of information about nutrition science and health, as well as strengthen our relationships with the scientific and public health communities to advance progress.

Stewardship Objective 4: Expand the Impact of ONR Activities, Programs, and Capabilities

Strategic communication and public awareness efforts will ensure that timely, accurate, and trustworthy information about nutrition research reaches the broadest audiences possible—including researchers, policymakers, and the public. These efforts are critical for advancing nutrition science, inspiring collaborations, promoting health, and fostering public trust. ONR activities and programs will facilitate the exchange of valuable information and increase awareness about the valuable impact of ONR throughout the nutrition research landscape.

BOX 4

ONR Activities and Programs

- *Nutrition for Precision Health, powered by the All of Us Research Program*
- Food Is Medicine Research
- Interagency Committee on Human Nutrition Research
- NIH-FDA Joint Leadership Council's Joint Agency Nutrition Working Group
- Nutrition Research Coordinating Committee
- Nutrition Science Research Thematic Working Groups
- NIH Ultra-Processed Foods Working Group
- ADVANTAGE Project: Agriculture and Diet: Value Added for Nutrition, Translation, and Adaptation in a Global Ecology
- BOND-KIDS Project: Biomarkers of Nutrition for Development–Knowledge Indicating Dietary Sufficiency
- BEGIN Project: Breastmilk Ecology: Genesis of Infant Nutrition
- ADMIT Project: Assessing Determinants of Malnutrition–Implications for Treatment
- ONR Teaching Kitchen Program

Crosscutting Strategic Priorities

Training and Development

Equally important to identifying existing and emerging research gaps and opportunities in the nutrition science research ecosystem is the need to welcome broad (including nontraditional) expertise to derive new knowledge that can be applied to create credible, practical solutions to the many challenges in this field. There is a need to build and sustain a workforce that is excited about pursuing nutrition-related questions that are complex and difficult—but for which the answers will be life-changing. The broad relevance of a nutritional ecology means that everyone has a stake in the design and outcome of nutrition research. Beyond research scientists, that includes individuals and community leaders, businesses and farmers, the restaurant and food industry, schools, nonprofit organizations, and many others.

Modern nutrition science looks very different from that of the traditional, nutrient-focused investigations of past decades. The opportunities are many, and they represent exciting opportunities for early-career scientists. New areas ripe for study include (but are not limited to) the microbial environment and the role it plays in interactions between nutrients, dietary patterns, and co-occurring diseases; interactions between individuals and the food environments they inhabit; and the study of nutrient-sensitive epigenetic factors that cross generations. As prioritized in this strategic plan, precision nutrition research also invites novel uses of wearable technologies and AI-based algorithms that track dietary behavior in real time.

These new opportunities invite many different members to the nutrition science enterprise, including registered dietitians/registered dietitian nutritionists, computer scientists, engineers, anthropologists, sociologists, psychologists, and economists. Importantly, nutrition science research will benefit from multidisciplinary approaches—and in particular, from genuine input from people and communities with lived experiences. Through continued rigorous training and workforce development, ONR will position NIH as the leader for driving discovery and innovation through foundational nutrition science research to achieve optimal health and reduce the burden of diet-related diseases for all Americans.

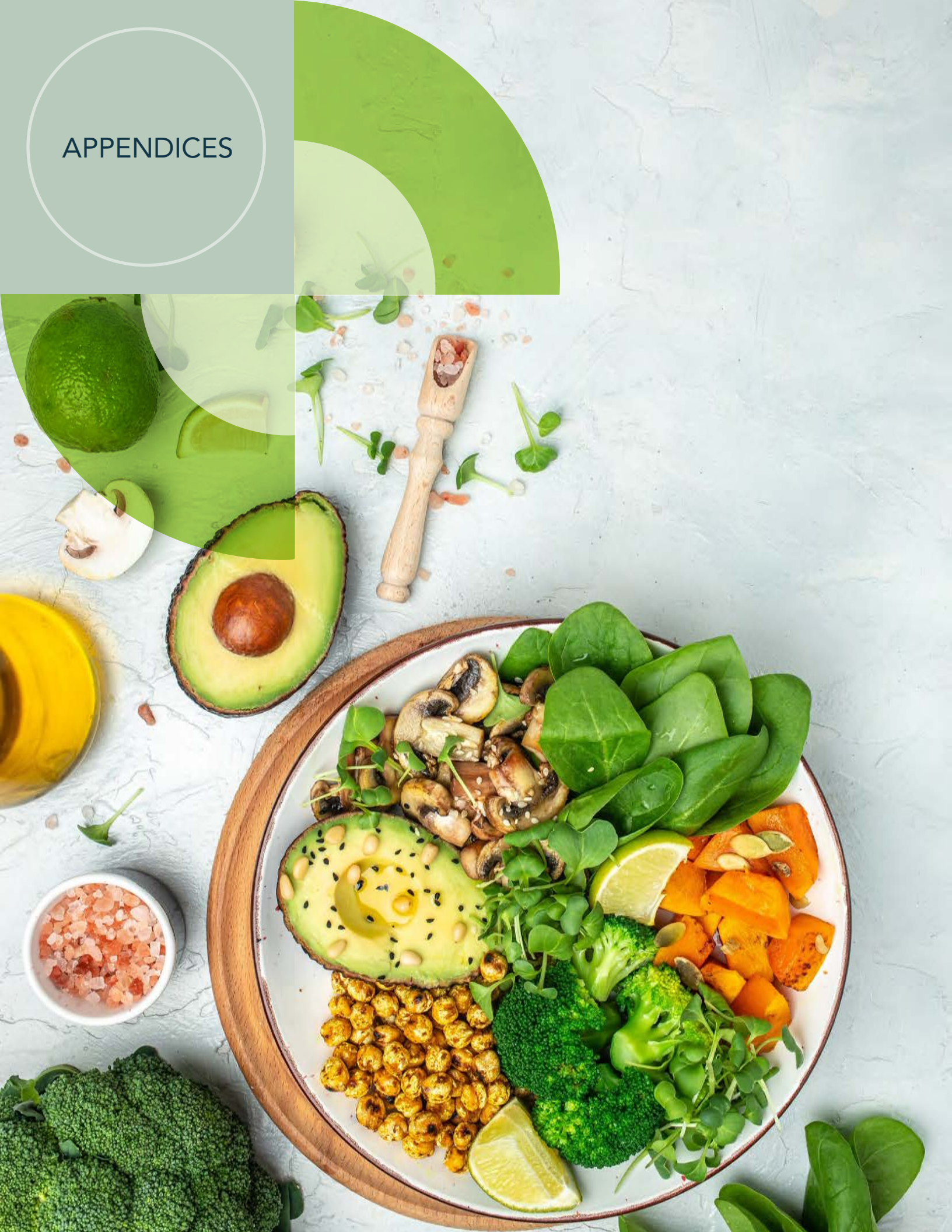
Optimizing Nutrition Across the Lifespan

Nutrition plays a foundational role in development, beginning even before birth, since parental diet and early life exposures influence long-term health outcomes. ONR will address nutrition-related issues in infancy (drawing from the Breastmilk Ecology: Genesis of Infant Nutrition [BEGIN] project) and in children and adolescents (drawing from the Biomarkers of Nutrition for Development–Knowledge Indicating Dietary Sufficiency [BOND-KIDS] project). ONR staff will also continue to support the efforts of the National Collaborative on Childhood Obesity Research, providing leadership, technical assistance, and additional resource support as needed.

Other areas of scientific opportunities across the lifespan are ready for exploration. For example, the Developmental Origins of Health and Disease hypothesis underscores how nutritional and environmental factors during pregnancy can affect not only mother and baby throughout life, but also future generations. Adolescence is another critical stage in which external influences, such as social media, school environments, and community settings, shape dietary habits and physical activity, setting the stage for lifelong health. In middle age, physiological changes and lifestyle factors also contribute to diet-related diseases, emphasizing the need for early prevention and strategic intervention. This life stage also introduces unique challenges, since many individuals juggle the dual responsibilities of caring for both children and aging parents while managing their own health. As people continue to age, additional factors such as cognitive decline, mental health issues, and social isolation further complicate nutritional needs.

Given the significance of nutrition for human health at every age and stage of life, ONR will establish, coordinate, and support research activities focused on nutrition and health across the lifespan, considering the complex factors shaping health from before birth to the senior years. Doing so will unlock new insights that optimize health across all stages of life and, in the near term, address the urgent crisis of diet-related health conditions affecting Americans of all ages.

APPENDICES



Appendix 1: Office of Nutrition Research Vision, Mission, Goal, Strategy, and Values

Vision:

Advance nutrition science for the health of this and future generations.

Values:

Integrity, Curiosity, Teamwork, Communication, Transparency, Growth

Mission:

Stimulate innovative research to address the complexities of nutrition, its ecology, and its critical role in health across the lifespan for all.

Goal:

Reinforce the integral role of nutrition in all aspects of human biology, health, and disease. Achieving this goal will:

- Improve the precision of assessment and attribution of one's nutritional status to support clinical and public health interventions.
- Provide the evidence base to develop context-specific, culturally appropriate, resilient, and sustainable solutions to address priority health outcomes across the lifespan.

Strategy:

Serve as a synergistic hub across NIH, the federal government, and nongovernment multisectoral partners to support the nutrition research agenda. This will be accomplished through:

- Service
- Technical support and assistance
- Coordination

Appendix 2: Office of Nutrition Research Strategic Planning Process

NOVEMBER–DECEMBER 2023

Established New Leadership

The new Office of Nutrition Research (ONR) Director met with internal and external partners to assess research opportunities and reinforce the office's strategy of providing service, technical support and assistance, and coordination.

JANUARY–MAY 2024

Assessed Office Progress and Future Directions

ONR staff reviewed progress toward the four strategic goals from the *2020–2030 Strategic Plan for NIH Nutrition Research*:

- Spur Discovery and Innovation Through Foundational Research
- Investigate the Role of Dietary Patterns and Behaviors for Optimal Health
- Define the Role of Nutrition Across the Lifespan
- Reduce the Burden of Disease in Clinical Settings

ONR staff reflected on the operational needs and future directions of the office.

Staff meetings were held weekly. Activities included portfolio analyses, a SWOT (Strength, Weakness, Opportunity, Threat) analysis, and a SOAR (Strengths, Opportunities, Aspirations, Results) analysis.

JUNE–DECEMBER 2024

Refined Priorities and Projects

ONR staff held a series of retreats and focused working sessions to assess progress and review the current nutrition research landscape. All staff members participated equally in the proceedings. Comments from subject-matter experts in the many scientific disciplines relevant to modern nutrition science were also considered. From this, the ONR team synthesized all the information and feedback to develop its strategic plan that will continue to effectively support the *2020–2030 Strategic Plan for NIH Nutrition Research.*

JANUARY–APRIL 2025

Finalized Strategic Plan

The *ONR FY 2026–2030 Strategic Plan* was presented to NIH leadership for review and approval.

Appendix 3: Office of Nutrition Research Alignment With the Goals of the 2020–2030 Strategic Plan for NIH Nutrition Research

2020–2030 Strategic Plan for NIH Nutrition Research Strategic Goals:

Spur Discovery and Innovation Through Foundational Research

The Office of Nutrition Research (ONR) crosscutting strategic priority of Training and Development aligns with this strategic goal.

Investigate the Role of Dietary Patterns and Behaviors for Optimal Health

ONR's research objective to Advance the Understanding of Sustainable Nutrition in a Changing Environment aligns with this strategic goal.

STRATEGIC GOALS **2020–2030**

Define the Role of Nutrition Across the Lifespan

ONR's crosscutting goal of Optimizing Nutrition Across the Lifespan aligns with this strategic goal.

Reduce the Burden of Disease in Clinical Settings

ONR's goal to Support the Generation of Evidence to Address Priority Diet, Nutrition, and Health Outcomes aligns with this strategic goal.

Unifying Theme:

Precision Nutrition

ONR's research objective to Enhance the Precision of Nutrition Science aligns with this theme.

Appendix 4: Glossary

DEFINITIONS

Ecology	The interaction of a complex system with its biological, physical, and sociopsychological environments
Nutriome	The pattern of nutrients and analytes and their interrelationships in biological systems
Sustainable Nutrition	The ability to maintain a nutritional status that will support growth, development, and health throughout the life course and that is achievable by recognizing the synergies between the needs of the target population, their unique health context, and factors affecting the capacity of the food systems required to meet those needs

COMMONLY USED ABBREVIATIONS/ACRONYMS

ADMIT	Assessing Determinants of Malnutrition–Implications for Treatment
ADVANTAGE	Agriculture and Diet: Value Added for Nutrition, Translation, and Adaptation in a Global Ecology
AIPrN	Advanced Training in Artificial Intelligence for Precision Nutrition Science Research Institutional Research Training Program
BEGIN	Breastmilk Ecology: Genesis of Infant Nutrition
BOND-KIDS	Biomarkers of Nutrition for Development–Knowledge Indicating Dietary Sufficiency
DPCPSI	Division of Program Coordination, Planning, and Strategic Initiatives
FDA	U.S. Food and Drug Administration
ICHNR	Interagency Committee on Human Nutrition Research
ICOs	Institutes, Centers, and Offices
NCCOR	National Collaborative on Childhood Obesity Research
NES	Nutrition Education Subcommittee
NGO	Nongovernmental Organization
NPH	Nutrition for Precision Health, powered by the *All of Us* Research Program
NIH	National Institutes of Health
NRCC	Nutrition Research Coordinating Committee
ONR	Office of Nutrition Research

National Institutes of Health
Office of Nutrition Research