National Institutes of Health
Office of Dietary Supplements

New Initiatives in Nutrition Research at NIH

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DC IFT Food Policy Impact 2018

National Nutrition Research Roadmap: Organizing Questions

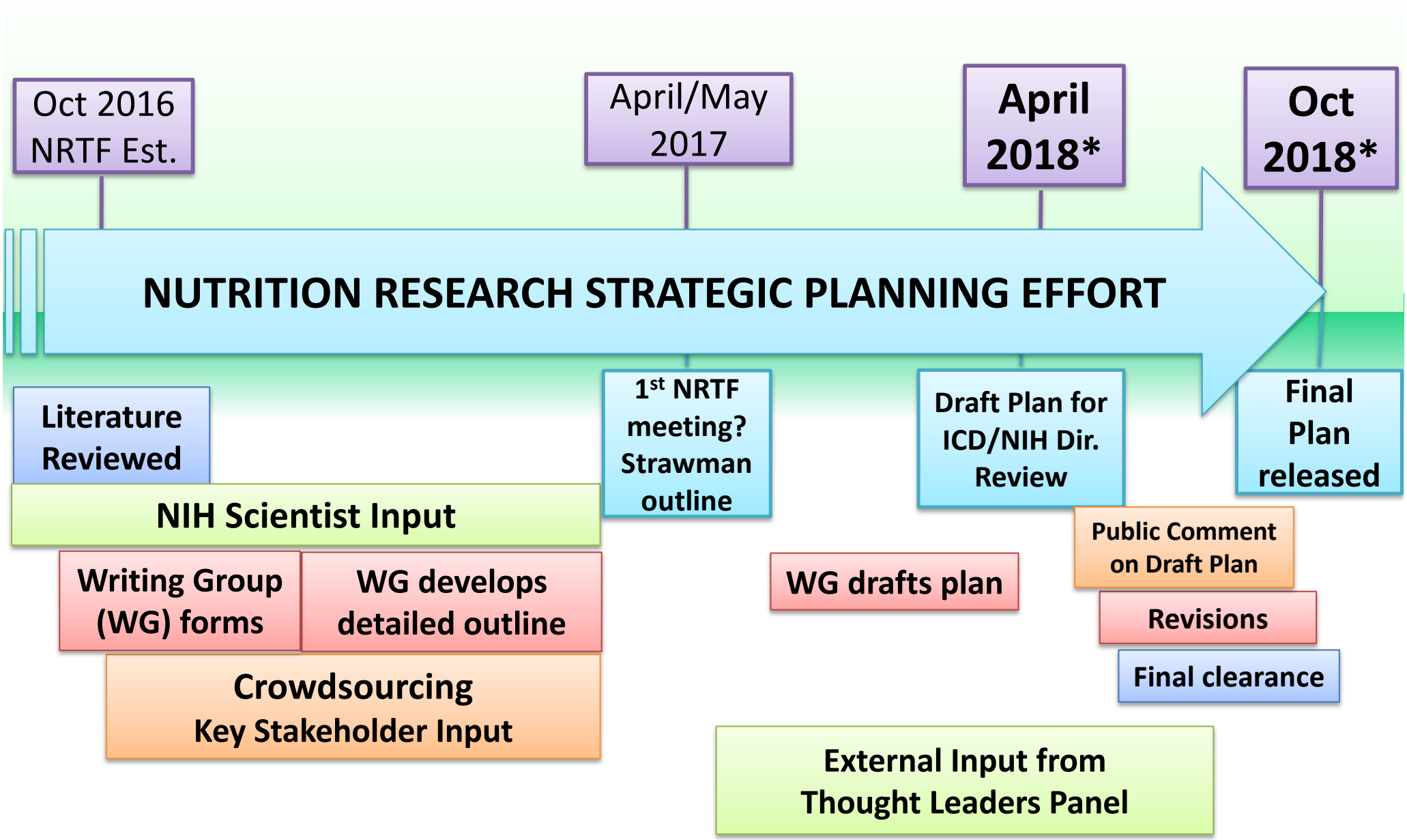
1: How can we better understand and define eating patterns to improve and sustain health?

2: What can be done to help people choose healthy eating patterns?

3: How can we engage innovative methods and systems to accelerate discoveries in human nutrition?

	HHS Agency			
	CDC	FDA	HRSA	NIH
1. How do we better understand and define eating patterns to improve and sustain health?				
Health Promotion and Disease Prevention and Treatment	X	X	X	X
Individual Differences including "Omics"		X	X	X
Population-level Monitoring	X	X	X	X
2. What can be done to help people choose healthy eating patterns?				
Influences on Eating Patterns	X	X	X	X
Interventions	X	X	X	X
Systems Science	X	X	X	X
Environmental Sustainability				
3. How can we develop and engage innovative methods and systems to accelerate discoveries in human nutrition?				
Assessing Dietary Exposures	X	X		X
Biobehavioral Science		X		X
Behavioral Economics	X	X	X	X
Big Data	X	X		X

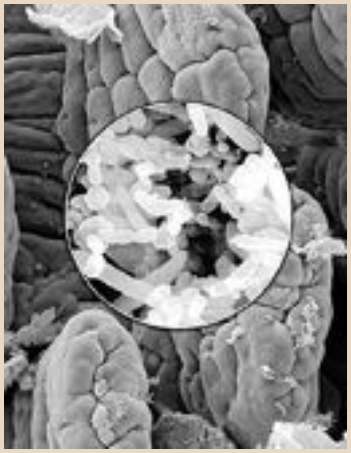
NIH Nutrition Strategic Planning Timeline



*Deadlines included in NRTF charter.

The Human Microbiome

- We are a composite of species: eukaryotic, bacterial, viral- up to 10x more microbial cells than human
- Gut Microbiota= microbes in our GI tract, ~100 trillion organisms
- Microbiome= their collective genome, >100 times as many genes as human genome



Federal and NIH Microbiome Working Groups

- **Trans-NIH Microbiome Working Group**
  - Forum for extramural microbiome-related investments at NIH such as the development of funding opportunity announcements, conferences, and as a central source for the external community

- **Joint Agency Microbiome Working Group**
  - Working group of FDA, NIH and NIST intramural and extramural scientists interested in microbiome research to promote trans-agency collaborations

- **Microbiome Obesity Working Group**
  - Subset of the obesity research taskforce to advance our knowledge on the contribution of the human gut microbiome to obesity

- **Microbiome Quality Control Project**
  - Composed of NIH intramural and extramural investigators engaged in collaborative effort to comprehensively evaluate methods for measuring the human microbiome (sample collection, techniques and protocols for analysis, and computational pipelines)

NIH OFFICE OF DIETARY SUPPLEMENTS

Strategic Plan 2017–2021

Strengthening Knowledge & Understanding of Dietary Supplements

DECEMBER 2016

NIH National Institutes of Health
Office of Dietary Supplements

ODS Goals

1. Expand the scientific knowledge base on dietary supplements by stimulating and supporting a full range of biomedical research and by developing and contributing to collaborative initiatives, workshops, meetings, and conferences.

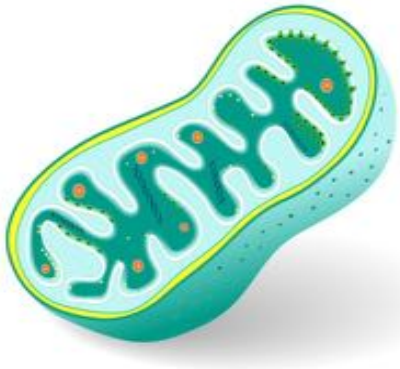
2. Enhance the dietary supplement research workforce through training and career development.

3. Foster development and dissemination of research resources and tools to enhance the quality of dietary supplement research.

4. Translate dietary supplement research findings into useful information for consumers, health professionals, researchers, and policymakers.

Identifying Priorities

- What's the public health issue?
- How are nutritional status and bioavailable levels of DS metabolites measured? Are measures reliable?
- Evidence for health effects of DS? At what levels?
- How should ODS and the research community fill the gaps in knowledge?
- How do we translate the results of research for policymakers, clinicians, and the public?

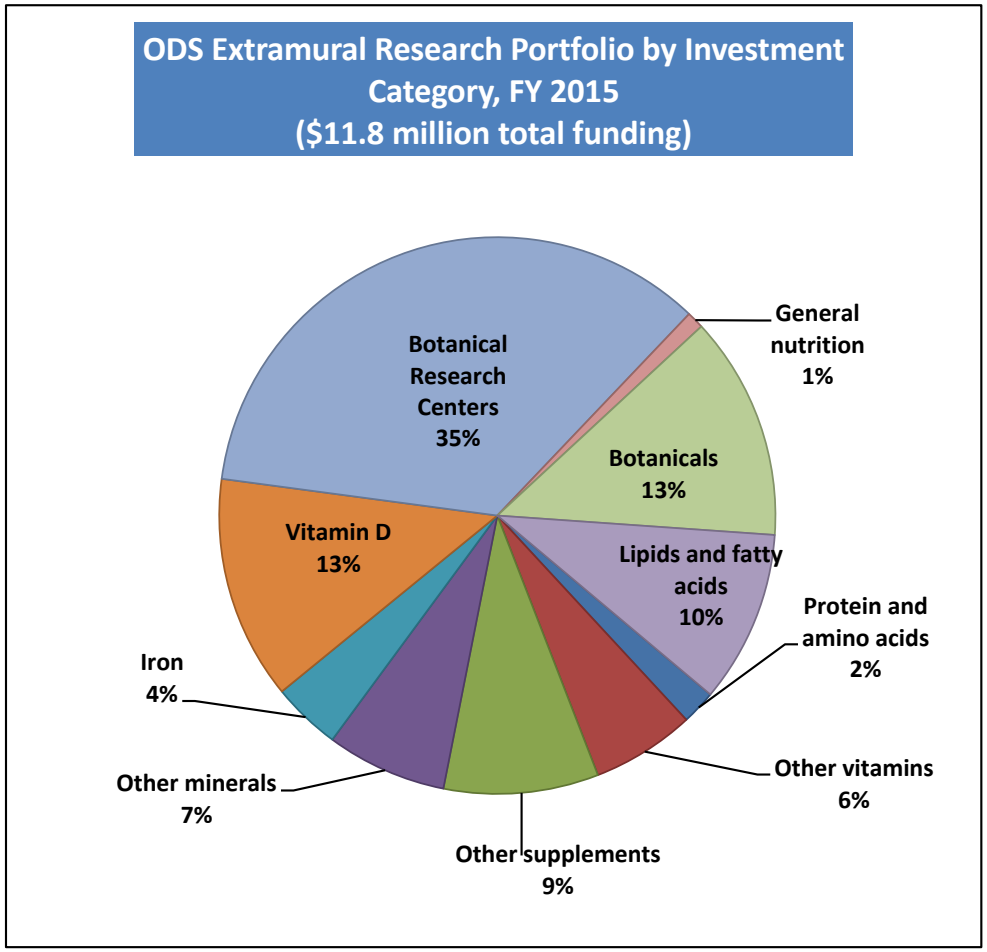


National Institutes of Health
Office of Dietary Supplements

Selected Program Highlights

Just Posted: Annual Report on ODS Website

Research Grant Co-Funding



ODS Co-Funded Investments with NIH-ICs(FY 2015)	
	$ Thousands
National Center for Complementary and Integrative Health	5,765
National Heart, Lung, and Blood Institute	1,638
National Institute of Diabetes and Digestive and Kidney Diseases	1,421
National Cancer Institute	855
National Institute on Alcohol Abuse and Alcoholism	536
National Institute on Aging	462
Fogarty International Center	253
National Institute of Environmental Health Sciences	199
National Institute of Child Health and Human Development	163
National Institute of Neurological Disorders and Stroke	100
National Institute of Allergy and Infectious Diseases	100
National Institute of General Medical Sciences	100
National Eye Institute	91
National Institute of Arthritis and Musculoskeletal and Skin Diseases	85
National Institute of Dental and Craniofacial Research	34

Analytical Methods and Reference Materials Program (AMRM)

- Development of laboratory tools to assist in the verification of manufacturers' label claims and in quality control
- Dietary Supplement Laboratory Quality Assurance Program for academic and commercial labs
- Quality assurance programs for nutritional biomarkers (vitamin D, omega-3 fatty acids)
- Workshops on methodologies for characterizing dietary supplements and improving laboratory performance
- Validation of methods used in biomedical research on botanicals and other dietary supplement ingredients
- Website that includes a searchable database of analytical methods

Dietary Supplement Databases

- **The Dietary Supplement Label Database (DSLD) contains data from >75,000 labels (adds 1,000 new labels/month)**
- **The Dietary Supplement Ingredient Database (DSID) provides analytically derived information on the amount of ingredients of some dietary supplements (multivitamins, omega-3 fatty acids, prenatal vitamins, green tea)**
  - **Collaboration with USDA/ARS**
- **Computer Access to Research on Dietary Supplements (CARDS) - information on research projects pertaining to dietary supplements funded by the USDA, DoD, and NIH since 1999**
  - **Pilot study for National Nutrition Research Database**

Vitamin D Initiative

- **Standardization of vitamin D measurement and certification for laboratories measuring vitamin D levels in blood**
- **Studies of international health and nutrition surveys for vitamin D levels in blood and reported vitamin D intakes**
- **Systematic review of health outcomes re vitamin D alone or with calcium**
- **Analysis of vitamin D exposure from sunlight, dietary supplements, and food**

The Vitamin D Paradox: Summary of an NIH Expert Panel Meeting

- **The paradox is significant and of clinical relevance**
  - **Despite markedly low (or even "deficient") measures of vitamin D status [serum 25(OH)D] in Black Americans, the incidence of falls, fractures, or osteopenia are significantly lower compared to White American counterparts with similar vitamin D status.**
  - **Black Americans gain no skeletal benefits from high doses of vitamin D supplementation.**
  - **High levels of serum 25(OH)D in this population are almost certain to result in adverse effects.**

- **Adiposity, skin pigmentation, and genetics contribute to differences in 25(OH)D levels in Black vs. White Americans; however, no one factor in isolation can fully explain the paradox.**

Screening and Supplementation in Iron-replete Pregnant Women & Young Children

September 28-29 2016

Sponsored by Office of Dietary Supplements, NIH and 10 Federal Agency Co-sponsors

- **Impetus**
  - **"I" Statements in two 2015 USPSTF reports**
  - **Developed countries (versus developing countries)**
  - **Biological underpinnings, supplementation of iron-replete, measurement challenges**
- **Goals**
  - **Identify and fine-tune evidence gaps**
  - **Foster cross-dialogue**
- **Workshop Topic Areas**
  - **Iron homeostasis during pregnancy and 6-24 mo**
  - **Hematological measurement, iron status**
  - **Emerging concerns about "exposure" to iron: gestational diabetes, pre-term birth, impaired growth, impaired cognition**
- **23 manuscripts published as supplement to *AJCN* vol 106 (Suppl), Dec 2017**

Workforce Development

- **Training and career development awards through NIH extramural mechanisms**
- **ODS Intramural Scholars awards with NIH Institutes and Centers**
- **Collaboration with other Federal agencies to support postdoctoral fellows (e.g., NIST and USDA)**
- **Short-term training opportunities for students and faculty members at ODS**
- **Annual Mary Frances Picciano Dietary Supplement Research Practicum, a 3-day intensive course on issues in dietary supplement research. Next one: May 30-Jun 2, 2018 – registration will open soon**

Communicating the Science of Supplements

- **Media inquiries and questions from the public about dietary supplements**
- **ODS website:**
  - **Detailed descriptions of ODS program areas and activities**
  - **Research funding opportunities, listing of funded grant applications, dietary supplement databases, and PubMed dietary supplement subset**
  - **E-newsletters, such as *ODS Update* (directed to professional audiences) and *The Scoop* (for consumers), as well as email blasts on special topics**
  - **1.5 million visitors per month**
- **Fact sheets on dietary supplement ingredients and on supplements marketed for specific purposes (weight loss and athletic performance)**
- **ODS posts daily about dietary supplements and nutrition on Twitter, Facebook**

NEWS RELEASES

Will supplements help your workout or diet routine?

New resources from NIH cut the confusion on dietary supplements.

The new year is a time to set new goals, and for many people this means losing weight and improving fitness. Although these goals are back-met with a nutritious diet and regular physical activity, many people may turn to dietary supplements for a boost to their routines. To help cut the confusion, the Office of Dietary Supplements (ODS) at the National Institutes of Health has two new resources to help people understand what is known about the effectiveness and safety of many ingredients in dietary supplements promoted for fitness and weight loss.

Dietary Supplements for Exercise and Athletic Performance covers products — sometimes called ergogenic aids — that claim to improve strength or endurance, increase exercise efficiency, achieve a performance goal more quickly, and increase tolerance for more intense training.

"Dietary supplements marketed for exercise and athletic performance can't take the place of a healthy diet, but some might have value for certain types of activity," said Paul M. Coates, Ph.D., director of ODS. "Others don't seem to work, and some might even be harmful."

This fact sheet covers more than 20 ingredients found in fitness supplements, including antioxidants, beetroot, tart cherry, branched chain amino acids, caffeine, creatine, and protein. Creatine, for example, might help with short bursts of high-intensity activity like sprinting or weight lifting, but not for endurance efforts like distance running or swimming. Meanwhile, antioxidants such as vitamins C and E don't seem to improve any type of physical activity, though they're needed in small amounts for overall health.

More than two-thirds of adults in the United States are overweight or obese, and many are trying to lose those extra pounds. Dietary Supplements for Weight Loss guides readers through the confusing set of options in the marketplace.

"Americans spend over $2 billion a year on dietary supplements promoted for weight loss, but there's little evidence they actually work," said Anne L. Thaler, Ph.D., director of the ODS Communications Program. "And people may not know that many manufacturers of weight-loss supplements don't conduct studies in humans to find out whether their product works and is safe."

This fact sheet covers 24 ingredients found in these products, including African mango, beta glucans, chromium, garcinia, green tea, hoodia, and raspberry ketones. Chromium, for example, might help you lose a very small amount of weight and body fat, and is safe. But raspberry ketones haven't been studied enough to know whether they're safe or effective, and while drinking green tea is safe, taking green tea extract pills has been linked to liver damage in some people.

Both fact sheets are available in a health professional version that is detailed and fully referenced, as well as consumer versions in both English and Spanish. In fact, most ODS fact sheets on dietary supplement ingredients are available in these multiple formats.

Institute/Center

Office of Dietary Supplements

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