

## FACTS

### NUMBERS AT A GLANCE

**150**

employees,  
which includes  
48 research  
scientists

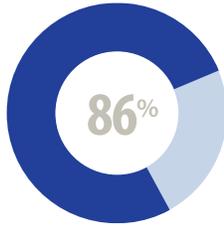
**350**

peer- reviewed  
scientific papers  
were produced  
by HNRCA  
scientists in the  
last 3 years

**563**

grant  
submissions from  
FY13 to present  
with a 29%  
success rate.

Of these awards,  
59 federal and 19  
were industry.



% of US healthcare spent  
on diabetes, obesity,  
cardiovascular disease,  
stroke, cancer, and arthritis

People age 65 or older made up 15% of the United States population in 2014. In 2030, the proportion of older Americans is expected to grow to nearly 21% of the total U.S. population.

Spending on healthcare reached \$2.9 trillion in 2014 and treating diseases caused by unhealthy nutrition – diabetes, obesity, cardiovascular disease, stroke, cancer, and arthritis - represent 86% of all healthcare costs. An estimated \$200 billion per year is spent on health care associated with obesity alone.

## 1. HNRCA impact is significant

Scientists at the HNRCA play a central role in building our understanding of the critical importance of food and nutrition for health and are at the forefront of research that directly impacts the American public. Scientists from the HNRCA have provided foundational information used to improve national dietary guidelines and are working broadly with many entities, including but not limited to commodity boards and foundations, to ensure that research innovations are translated into improvements in the nation's food supply. The HNRCA's scientists also engage the public directly to improve health through authorship of popular books and extensive media coverage among other initiatives.

- By virtue of its location, the HNRCA is able to leverage the research and translational work done in the academic and innovative biomedical and life sciences corridor in the Boston area.
- The HNRCA has active collaborations with researchers at top-tier universities and other institutions in Boston and across the US.
- HNRCA scientists have a long-standing collaboration with the U.S. Army to research obesity, muscle mass and combat readiness, and to contributing to the development of future leaders for the Department of Defense.
- HNRCA scientists are a resource for the AARP Foundation, the City of Boston, and Harvard Pilgrim Health Care Foundation among others.

Scientists serve on highly respected national and international committees including, but not limited to the American Dietary Guidelines Advisory Committee; National Academies of Sciences Engineering, and Medicine; International Osteoporosis Foundation; Center for the Advancement of Science in Space; American Heart Association, and various university think tanks.

## FACTS

### USDA/ARS Human Nutrition Program MISSION:

*define the role of food and its components in optimizing health throughout the life cycle for all Americans by conducting high national priority research.*

#### Components:

- A. Linking Agricultural Practices and Beneficial Health Outcomes
- ✓ B. Monitoring Food Composition and Nutrient Intake of the Nation
- ✓ C. Scientific Basis for Dietary Guidance
- ✓ D. Prevention of Obesity and Obesity-Related Diseases
- ✓ E. Life Stage Nutrition and Metabolism

HNRCA research directly addresses 4 of the 5 components of the national priorities of the mission of the USDA/ARS Human Nutrition Program.

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## 2. HNRCA achievements and innovations

- HNRCA scientists are collaborating with the US Army to develop a method for sustainable weight loss. It is currently being researched with military families with plans to be scaled up as a program for all Americans.
- HNRCA scientists are world leaders in harnessing the power of food to prevent cardiovascular disease. They proved the dangers of trans fats (leading to a ban) and have identified the key plant foods that contain phytonutrients that prevent age-associated hardening of the arteries and hypertension.
- Research from the HNRCA fueled the field of personal nutrigenomics, fostering individualized dietary recommendations to minimize individual and familial susceptibility by harnessing gene-nutrient interactions.
- HNRCA research in muscle and bone function is contributing to lowering the more than \$31 billion spent yearly on treating falls in the US. Studies conducted at the HNRCA have validated exercise protocols and food plans that prevent osteoporosis and muscle loss and have shown that strength training as we age will help to prevent muscle loss and function, reducing the risk of falls.
- HNRCA scientists are creating new nutritional solutions to prevent major causes of disability in individuals over 60 years of age, including blindness, hip fractures, loss of muscle, cancer and impaired cognition. For example, they have discovered specific food constituents that may block the development of cancer; pin-pointed vegetables, fruits, and nuts rich in anti-inflammatory compounds that help preserve the function and repair of cells, tissues and organs at risk for disease and injury during aging; and identified phytonutrients that slow the progression of age-related cognitive impairment and dementia.
- Pivotal HNRCA research around the effects of supplemental micronutrients suggests that older adults may want to avoid consuming multiple supplements containing folic acid. While critical for women of childbearing age in the prevention of birth defects, HNRCA research suggests that too much supplemental folic acid in middle or late age may promote colorectal cancer.

Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University (HNRCA)

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- HNRCA labs contribute to the core resource in the country on the nutrients in foods: the USDA Food Composition Database. This database is heavily used by the National Health and Nutrition Examination Survey (NHANES), fellow nutrition researchers, policymakers, dietitians, consumers and on front-of – package labeling.
- HNRCA scientists are working on innovative projects to further our impact on national healthcare and agricultural landscape through nutrition, by focusing on such topics as genome-based personalized diets, health benefits of non-meat proteins, optimizing nutrition research through diet-specific data collection, nutritionally rejuvenated brain stem cells and eating for gut health.
- Pioneering work by HNRCA scientists has advanced the understanding of nutrient requirements, providing the foundation for nutrition and physical activity policy and guidance such as the Recommended Dietary Allowances and the Dietary Guidelines for Americans.

### 3. Cost-sharing and benefits from the relationship with Tufts University

- Annually, Tufts University cost shares \$1.6M as part of the existing collaborative arrangement with the USDA.
- The HNRCA is the Tufts University resource for training graduate students and postdoctoral fellows in human nutrition and aging research.
- Many HNRCA scientists are faculty at the Friedman School of Nutrition Science and Policy, School of Medicine, and/or Sackler School of Graduate Biomedical Sciences at Tufts University and/or have appointments at Tufts Medical Center. HNRCA scientists have ongoing collaborations across the four Tufts University campuses and serve on university leadership positions.