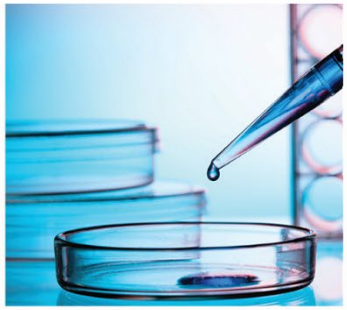
JEAN MAYER USDA HUMAN NUTRITION RESEARCH CENTER ON AGING

HNRCA



Promoting Healthy Aging through Nutrition

RCCN workshop summary

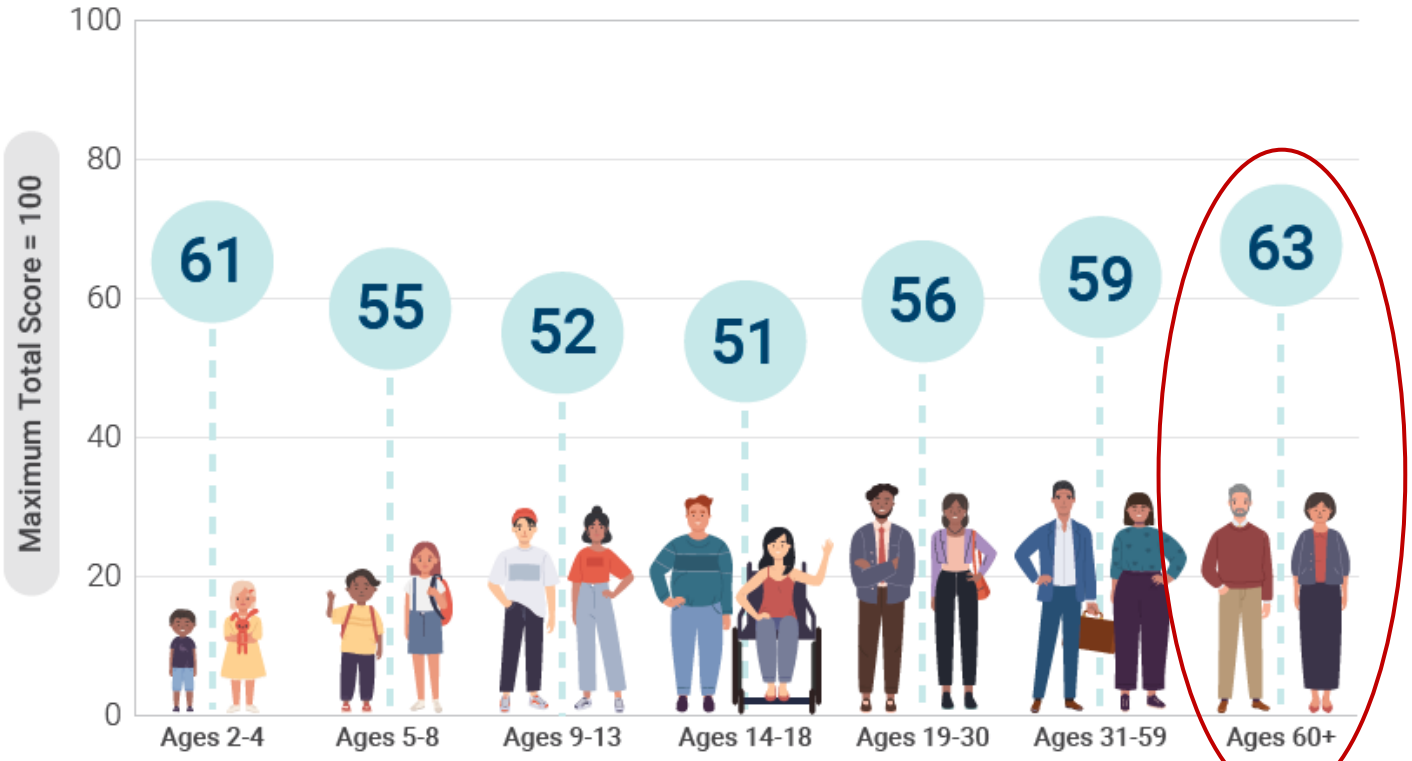
Kyla Shea, PhD

June 2024

DOI: 10.1016/j.advnut.2024.100199

Tufts UNIVERSITY

Older Adults' Dietary Intakes



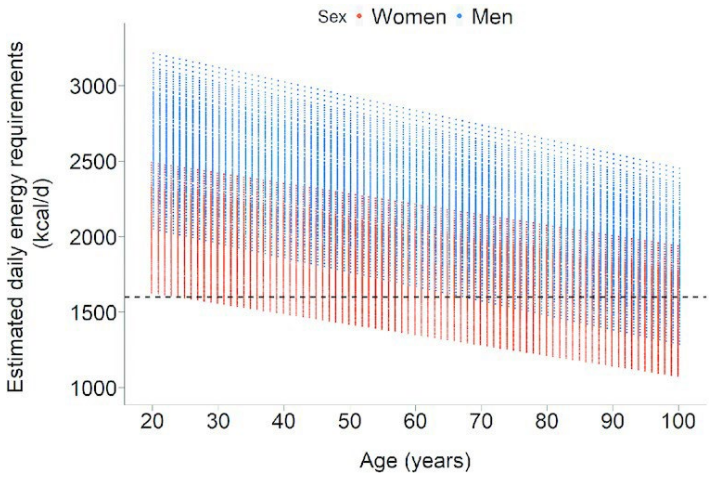
NOTE: HEI-2015 total scores are out of 100 possible points. A score of 100 indicates that recommendations on average were met or exceeded. A higher total score indicates a higher quality diet.

Data Source: Analysis of What We Eat in America, NHANES 2015-2016, ages 2 and older, day 1 dietary intake data, weighted.

Dietary Guidelines for Americans 2020-2025

Are 60-year-olds & 80-year-olds the same?

Energy requirements decrease with age.



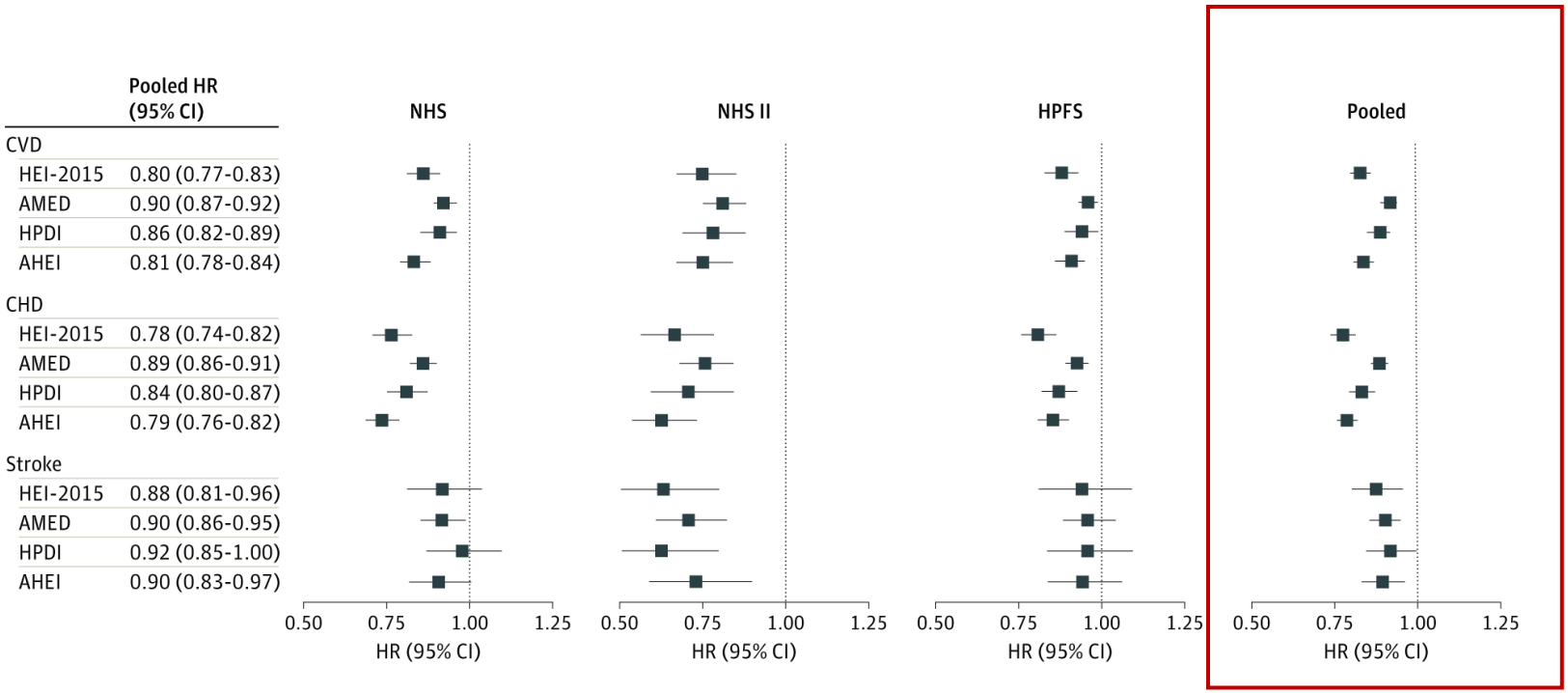
Roberts SB et al, *Advances in Nutrition*, July 2021

Limitations/Knowledge gaps:

- Based on convenience samples, often recruited for larger studies,
- Information to date may substantially underestimate the decrease in energy requirements during aging (self-selected healthy/active populations who participate in research)
- Almost no adults >80 years old, no normative data

courtesy of Sue Roberts

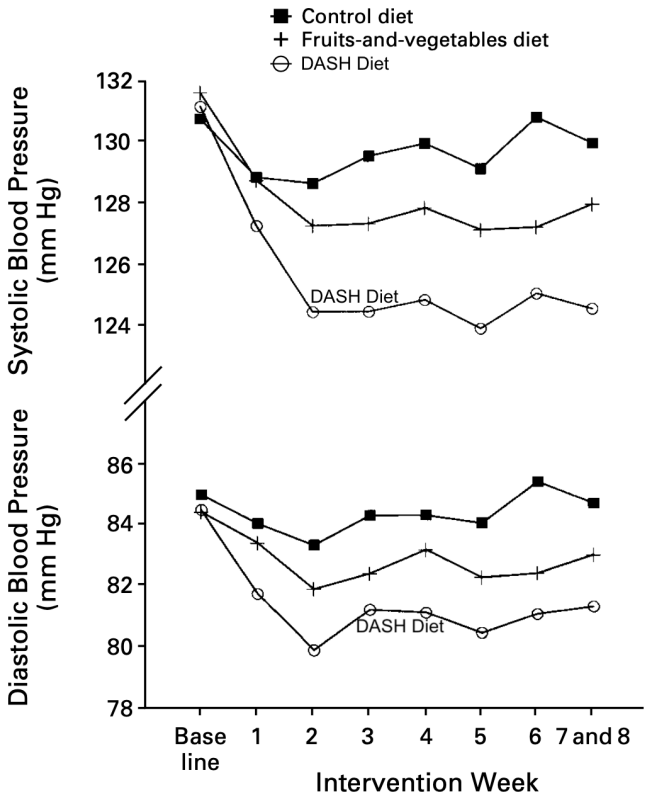
Healthy dietary patterns are associated with healthy aging.



Shan Z et al, *JAMA Intern Med.* 2020;180(8):1090-1100. doi:10.1001/jamainternmed.2020.2176

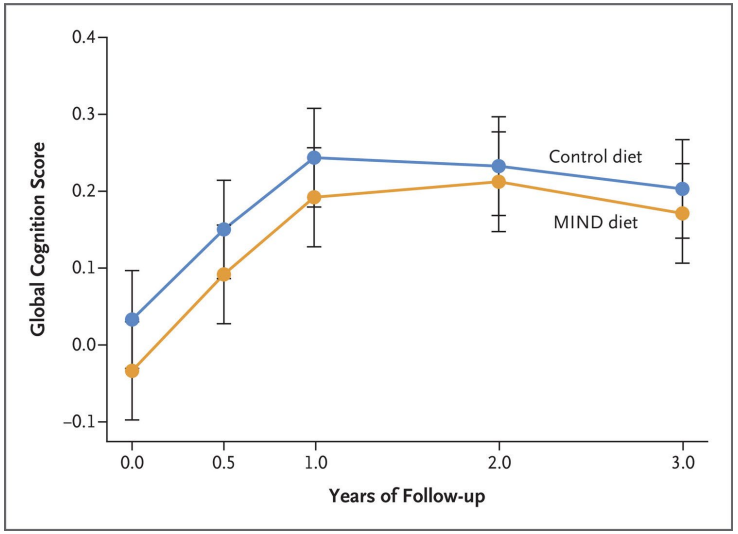
What about dietary pattern interventions?

DASH



Appel LJ et al, NEJM 1997 Apr 17;336(16):1117-24

MIND

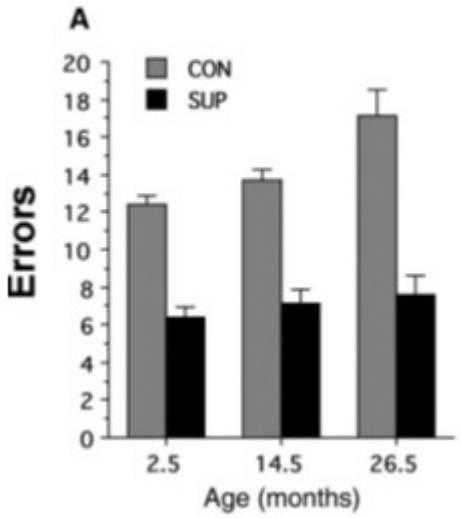


Barnes LL et al, NEJM 2023 Aug 17;389(7):602-611

Intervention timing

Life stage

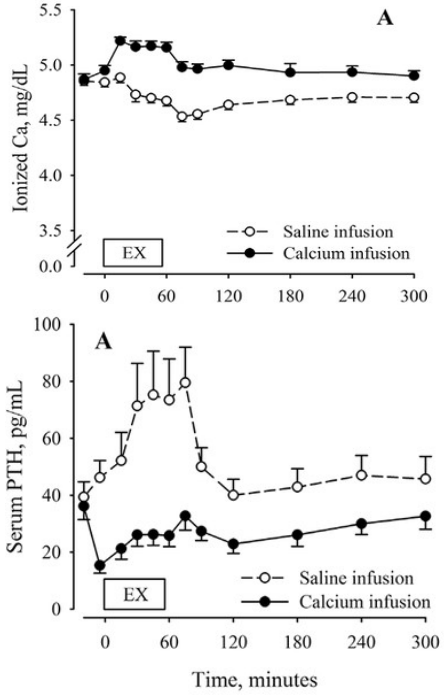
Pre/perinatal choline → cognition



Meck et al, Front Integr Neurosci. 2008

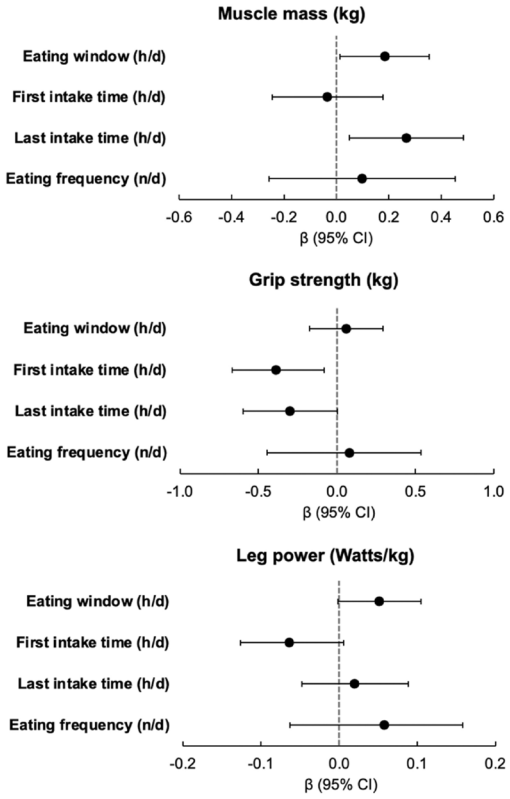
Exercise

Calcium



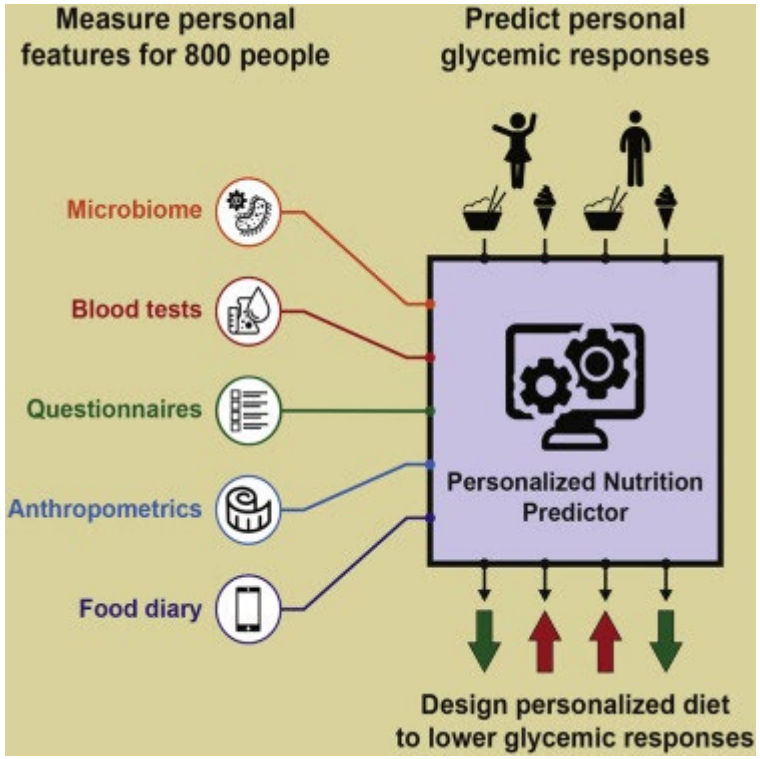
Khort W et al, JBMR, July 2018

Chrono-nutrition



Mao Z et al, Aging Cell, Dec. 2023

The intestinal microbiome as an intervention target



Zeevi et al, Cell. 63(15): 1079-1094, Nov 2015

courtesy of Rob Knight

Knowledge Gaps:

Diet intervention timing?

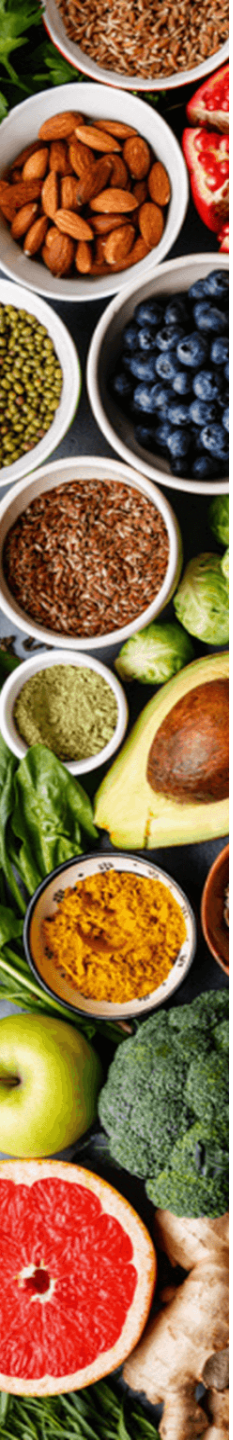
- 95% of gut microbiome changes occur before age 3.
- Short term dietary changes → transient changes in the microbiome.

Inter-individual variability in response to diet

- Interaction with other lifestyle factors
- Will require tailored approaches and AI

How do diet + microbiome interactions → geriatric syndromes (https://alzheimergut.org/)

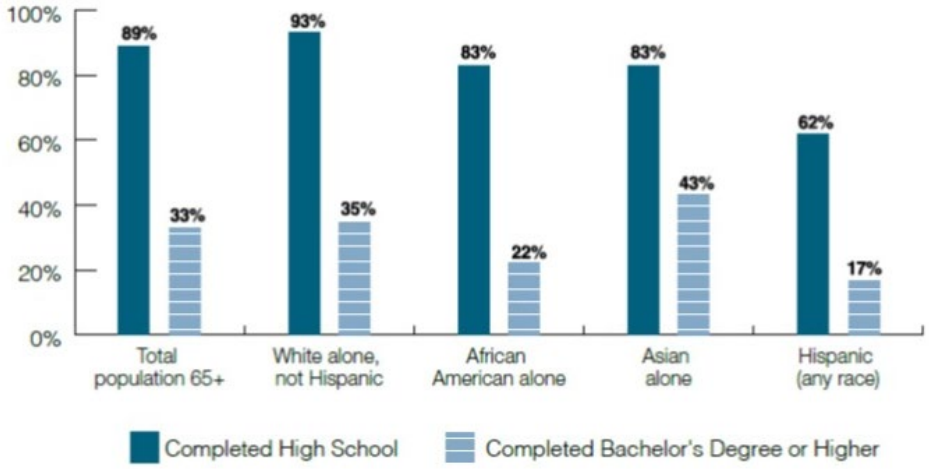
How does diet influence other microbiomes?



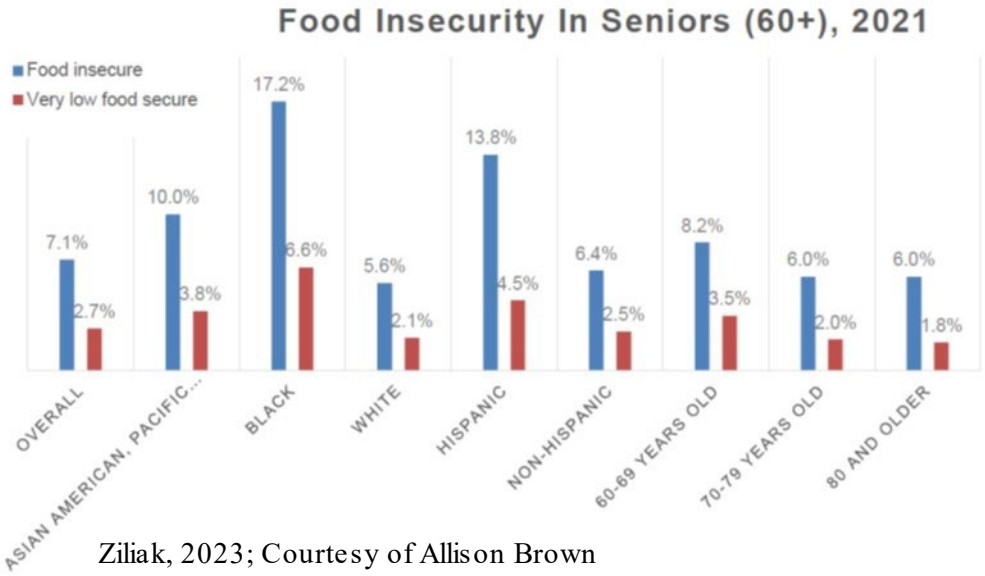
Dietary interventions – considerations

- Construction of dietary pattern – key characteristics? Foods? Nutrients?
- Control condition?
- Approach for energy intake? Other nutrients?
- Mode of intervention delivery?
- Resource intensive

Health Disparities & Social Context of Food Choice



Administration for Community Living, 2021 Profile of Older Americans



Ziliak, 2023; Courtesy of Allison Brown

ComPASS

https://commonfund.nih.gov/compass

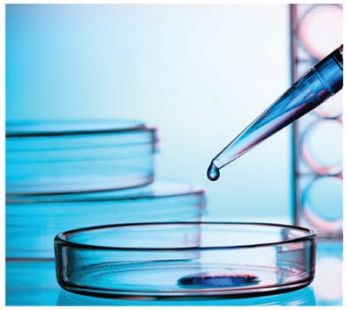
Opportunities to address research gaps:

Determine how energy requirements and dietary and nutritional needs change across the span of older adulthood.
Develop and tailor dietary strategies to the individual needs and health conditions of older adults.
Leverage artificial intelligence to deepen our understanding of the microbiome's influence on chronic disease outcomes and to develop microbiome-based interventions that mitigate age-related diseases and geriatric syndromes.
Promote research focused on the inter-relationship of social isolation, diet, and well-being in culturally diverse groups of older adults.
Tailor dietary recommendations and education programs to the cultural, migratory, and dietary experiences among the rapidly growing and diverse aging population.

DOI: 10.1016/j.advnut.2024.100199

JEAN MAYER USDA HUMAN NUTRITION RESEARCH CENTER ON AGING

HNRCA



Thank you

Tufts UNIVERSITY