



Challenges for NHANES: Nutrition Data from NHANES

**National Health and Nutrition Examination Survey (NHANES): Opportunities
for Revitalization**

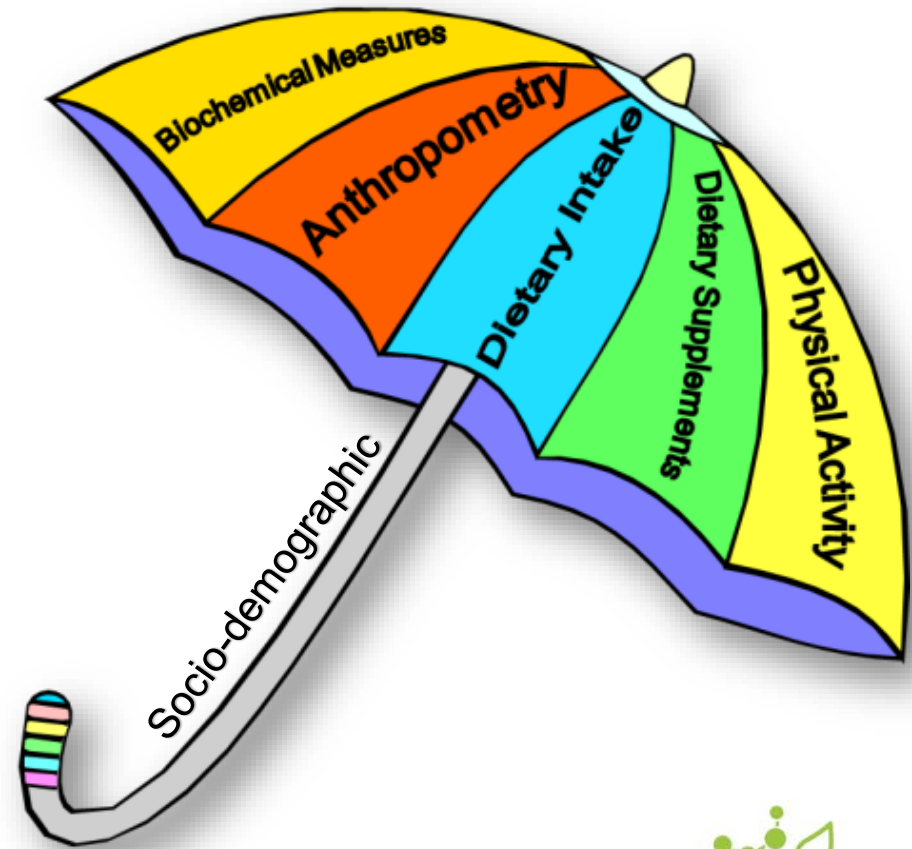
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Disclosures

No conflicts to disclose

Nutritional Monitoring in NHANES

- Estimate the population prevalence and distribution of health conditions and related risk factors
- Monitor trends over time: nutritional health, certain diet-related diseases, diet-related behaviors and environmental exposures
- Study the relationship of nutrient intake, nutritional status indicators, and health over time



Data Collection Interviews and Physical Exams

In-person home interview

Physical assessments in Mobile Exam Centers (MEC)

- Dietary interview and other interviews
- Physical measures (e.g., anthropometric measures, blood pressure)
- Lab specimen collection

Post exam assessments

- Phone dietary interview
- Physical activity monitoring, 24-hour urine collection

Dietary Components

- Dietary Interview: 24-hour dietary recall
 - 1999-2020 and ages 0+ y
 - What We Eat in America (WWEIA), conducted as a partnership with the U.S. Department of Agriculture
- Dietary Supplement Questionnaire
 - 1999-2020 and ages 0+ y
- Infant Feeding Practices
 - 1999-2020; ages 0-6 y
- Food Program Participation
 - 1999-2020; ages differ based on eligibility
 - WIC, SNAP, Congregate meals, meal delivery, school breakfast, school lunch
- U.S. Household Food Security Survey Module
 - 1999-2020 and ages 0+ y
- Food Frequency Questionnaires
 - Shellfish and fish, milk and alcohol
 - Expanded FFQ 151 item (2003-2006; ages 2+ y)
 - Collaboration with the National Cancer Institute, NIH

Dietary Components, cont.

- Nutrition knowledge and behaviors (Flexible Consumer Behavior Survey
 - various years, modules, and age groups
- Dietary Screener Questionnaire
 - 2009-2010; ages 2-69 y
- Iodized Salt usage
 - 2019-2020; ages 3+ y
- Complimentary Feeding Questionnaire
 - 2019-2020; ages <24 months

Anthropometric Measures

Measurement	NHANES Cycles	Target groups (years)
Weight	All	All ages
Height	All	Recumbent length for children aged <4 and standing height for participants aged ≥2
Body circumferences and skinfolds	Most NHANES cycles (with some variation across cycles)	Based on a participant's age
Body composition (bioelectric impedance and DXA)	1999-2006 2011-2016	8+ € 8-59
Sagittal abdominal diameter	2011-2016	8+

€ The age target was 8-69 y for the 2005-2006 cycle

QUESTIONNAIRE NOTE: Weight history and weight control practices (1999-2020 ages 16+ years and 2005-2020 ages 8-15 years)

Analyte	NHANES Cycles	Target groups (years)
Folate, RBC and Folate, serum [¥]	1999-2016 2017-2020	1+ ½ subsample males and females 1-11 and 50+ Full sample females 12-49
Vitamin D, serum 25-OH(D)	2001-2002 2003-2020 [€]	6+ 1+
Vitamin C	2003-2006 2017-2020	6+ 6+
Vitamin A/E/carotenoids	1999-2006 2017-2020	6+ [¥] 6+
Vitamin B12	1999-2006 2011-2014	6+ [¥] 20+
Iodine	2000-2014 [£] 2015-2020	1/3 subsample 6+ 1/3 subsample 6+, full sample of 3-5

[¥]Folate forms measured 2007-2020

[€] Vitamin D forms measured 2011-2020 (25-hydroxyvitamin D3 (25OHD3), 3-epi-25-hydroxyvitamin D3 (epi-25OHD3), and 25-hydroxyvitamin D2 (25OHD2))

[¥]Measured on participants 3+ y in 1999-2002

[£]Full sample in 2007-2008

Small Overview of Sample Design

Survey years	Oversampled groups
1999-2006	<ul style="list-style-type: none"> • Mexican-American persons • black persons • low-income white and other persons (at or below 130% of federal poverty level) • adolescents aged 12–19 • non-Hispanic white and other adults aged 70 and over • A supplemental sample included pregnant women (aged 15-39 years)
2007-2010	<ul style="list-style-type: none"> • Hispanic persons • non-Hispanic black persons • low-income non-Hispanic white and other persons (at or below 130% of federal poverty level) • non-Hispanic white and other adults aged 80 and over
2011-2014	<ul style="list-style-type: none"> • Hispanic persons • non-Hispanic black persons • non-Hispanic non-black Asian persons • low-income non-Hispanic non-black non-Asian white and other persons (at or below 130% of Federal poverty level) • adults aged 80+
2015-2018	<ul style="list-style-type: none"> • Hispanic persons • non-Hispanic black persons • non-Hispanic, non-black Asian persons • Non-Hispanic white persons and persons of other races and ethnicities at or below 185% of the federal poverty level • Non-Hispanic white persons and persons of other races and ethnicities aged 0–11 years or 80 years and over

Thank you

Physical Activity Components

Physical activity and physical fitness questionnaire

- 1999-2020 (2+ y)

Cardiovascular fitness

- 1999-2006 (12-49 y)

Grip Strength test

- 2011-2014 (6+ y)

Physical activity monitor

- 2003-2006 (6+ y), 2011-2014 (3+ y)

Physical functioning tests

- 1999-2002 (50+ y)
 - 8 foot timed walk – started in 2000
 - 20 foot timed walk
 - Isokinetics

Balance

- 2019-2020 (½ sample 40-69 y)

NHANES National Youth Fitness Survey (NNYFS) 2012 – Children 3- years