

Research Topics for NHANES Dietary Supplement Data



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Centers for Disease Control and Prevention
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Overview

- NHANES Overview
- Dietary Supplement Data Collection
- Dietary Supplement Research Topics
- What's New

National Health and Nutrition Examination Survey (NHANES)

Objective

To assess the health and nutritional status of adults and children in the United States.

NHANES

Unique in combining survey interview
with *physical* examinations.

Sample

- Civilian, non-institutionalized household population
- Residents of all states and the District of Columbia
- All ages
- A nationally representative sample of about 5,000 individuals each year

Oversample

- African Americans
- Mexican Americans
- Adolescents aged 12-19
- Older persons aged 60+
- Low income whites
- Pregnant women

NHANES

- Household Interviews
 - Family Questionnaire
 - Participant Questionnaire

- Mobile Exam Center
 - Physical exams
 - Interviews
 - Laboratory

Mobile Exam Center (MEC)



What Dietary Supplements are Americans Taking?

- NHANES is working on answering this question by:
 - Collecting dietary supplements data from participants
 - Compiling a Dietary Supplement LABEL database

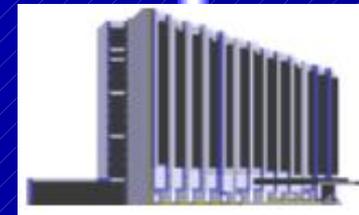


Dietary Supplements Flowchart

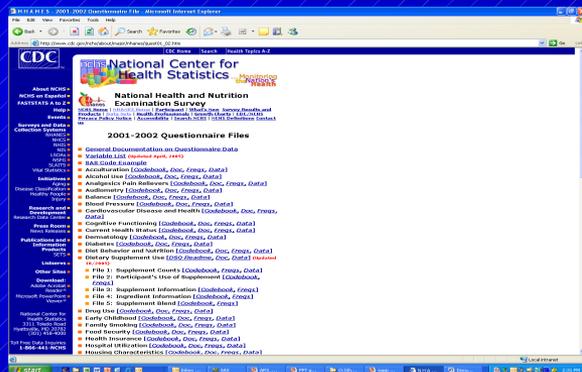
Household interviews



Field Office/WESTAT



NCHS



Reported supplement labels are found in our internal database, requested from manufacturers/distributors, or found on internet.

Dietary Supplement data released to public NHANES website

Supplement Use

Survey	Total	Men	Women
NHANES I '71-73 (no ref time)	33%	28%	38%
NHANES II '76-80 (no ref time)	35%	32%	43%
NHANES III '88-94 (30 days)		36%	48%
NHIS 1986 (2 weeks)	36%		
NHIS 1987 (past year)	51%		
NHIS 1992 (past year)	46%		
CSFII '94-96 (no ref time)		42%	56%
NHANES '99-00 (30 days)	52%	47%	57%
NHANES '99-02 combined (30 days) adults 18+	51%	45%	57%

Nutrient Intake

- Nutrient intake is associated with a wide range of health and disease conditions
- Most commonly, these relationships are based on intake of nutrients from foods only

Household Interview

- Use of dietary supplements and antacids.

“Have you used or taken any **vitamins, minerals, herbals or other dietary supplements** in the **past 30 days**? Include prescription and non-prescription supplements.”

Household Interview

- Product Usage
 - **“For how long have you been taking the product or a similar type of product?”**
 - **“In the past 30 days, how many days did you take the product? ”**
 - **“On the days that you took the product, how much did you usually take on a single day?”**

Household Interview

- New Question
 - **“Looking at this list, what is the reason you take the product?”**
 - Decided to take it for reasons of my own
 - A doctor or other health provider told me to

Household Interview

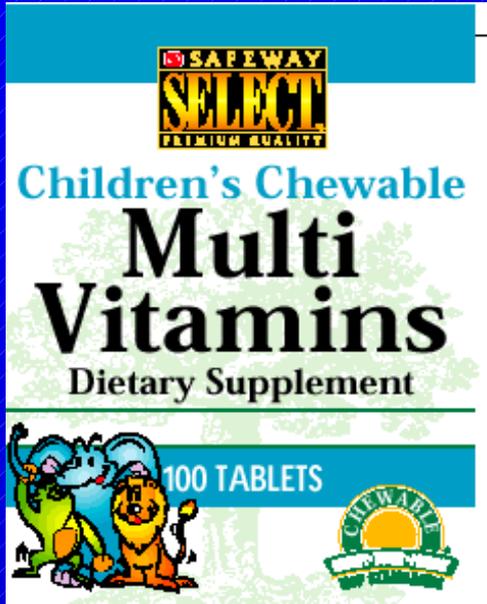
•New Question

“For what reason or reasons do you take the product/ For what reason did the doctor or other health professional tell you to take the product?”

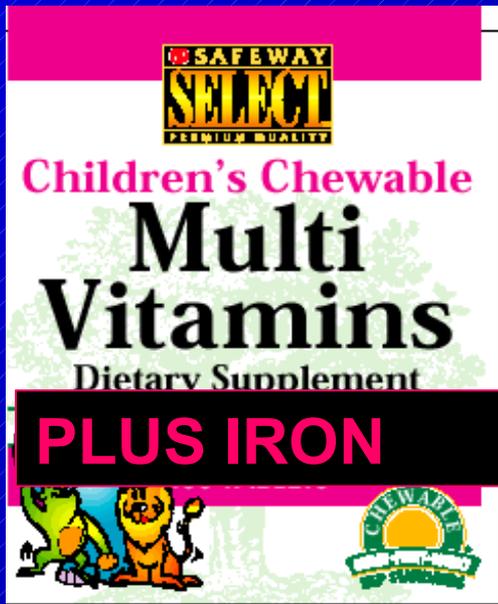
- FOR GOOD BOWEL/COLON HEALTH
- FOR PROSTATE HEALTH
- FOR MENTAL HEALTH
- TO PREVENT HEALTH PROBLEMS
- TO IMPROVE MY OVERALL HEALTH
- FOR TEETH, PREVENT CAVITIES
- TO SUPPLEMENT MY DIET (BECAUSE I DON'T GET ENOUGH FROM FOOD)
- TO MAINTAIN HEALTH (TO STAY HEALTHY)
- TO PREVENT COLDS, BOOST IMMUNE SYSTEM
- FOR HEART HEALTH, CHOLESTEROL
- FOR EYE HEALTH
- FOR HEALTHY JOINTS, ARTHRITIS
- FOR SKIN HEALTH, DRY SKIN
- FOR WEIGHT LOSS
- FOR BONE HEALTH, BUILD STRONG BONES, OSTEOPOROSIS
- TO GET MORE ENERGY
- FOR PREGNANCY
- FOR ANEMIA, SUCH AS LOW IRON
- OTHER

Supplement Containers

- If participant says that they have taken a dietary supplement then interviewer asks to see all supplement containers.
 - Containers are seen 88% of the time
 - It is very important that containers are seen so that supplement names can be recorded accurately and completely.



WITH ESSENTIAL MINERALS



WITH ESSENTIAL MINERALS

How do we find the actual supplement label that was reported by participants?

- NCHS nutritionists review supplement names recorded by interviewers
- Match reported supplement with supplement in our dietary supplement database.
- If supplement is not in our database we obtain the product label.
- Matches are made with varying degrees of precision.

Obtaining Supplement Label Data

- If we do not have the supplement label already in our database, or the label information is outdated we obtain the label by:
 - Contacting manufacturers and distributors
 - Company websites
 - Other internet sources
 - Physicians Desk Reference

Information entered in our Dietary Supplement Database

- Supplement name
- Source of information (manufacturer, distributor, and other references such as the Internet and PDR.
- Product type (infant/pediatric, prenatal, geriatric, standard)
- Ingredient and dosage information
- Manufacturer and Distributor information
- Contact information

What is entered from the label?

REQUIREMENTS FOR DIETARY SUPPLEMENT LABELS

STATEMENT OF IDENTITY

GINSENG
A DIETARY SUPPLEMENT

NET QUANTITY OF CONTENTS

100 CAPSULES

STRUCTURE-FUNCTION CLAIM FOLLOWED BY FDA WARNING

When you need to perform your best, take ginseng. This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

DIRECTIONS

DIRECTIONS FOR USE: Take one capsule daily

Supplement Facts

Serving Size - 1 capsule	
Amount per capsule	
Oriental Ginseng, powdered (root)	250 mg*

*Daily Value not established.

OTHER INGREDIENTS

Other ingredients: Gelatin, water, ABC Company, Anywhere, USA

NAME AND PLACE OF BUSINESS

SOURCE: American Dietetic Association

MSNBC

DHES Unified Mineral and Product Supplement Database

DUMPS

Search by Product Name

Search By Product Code:

Search

Product Code	Product Name	
1-000-1495-00	AARP PHARMACY SERVICE FORMULA 174 VITAMIN C SUPPLEMENT 1000 MG, USP	RETIRED PEI
1-000-1494-00	AARP PHARMACY SERVICE FORMULA 564 CALCIUM SUPPLEMENT 600 MG WITH V	RETIRED PEI
1-000-1499-00	AARP PHARMACY SERVICE FORMULA 643 ALPHABET II MATURE FORMULA VITAMIN	RETIRED PEI
1-000-1498-00	AARP PHARMACY SERVICE FORMULA 687 CALCIUM CITRATE DIETARY SUPPLEME	RETIRED PEI
1-000-1496-00	AARP PHARMACY SERVICE FORMULA 689 CALCIUM CITRATE PLUS VITAMIN D 200	RETIRED PEI
1-000-0819-00	ACID FREE THE ACID-NEUTRALIZING DIGESTIVE AID	PERFORMAN
1-000-1547-00	ADVANCED C-JOINTIN CHONDROITIN COMPLEX WITH GLUCOSAMINE, MSM, AND	VITAMIN WOR
1-000-0709-00	ADVANCED FORMULA ZENATE TABLETS	LEINER HEAL SOLVAY PHA
1-000-0749-00	ALCON ICAPS LUTEIN AND ZEAXANTHIN FORMULA	ALCON LABO
1-000-0748-00	ALCON ICAPS ORIGINAL FORMULA	ALCON LABO

Browse

Add

Delete

Ingredients

Exit

Total No Of Products:

1670

NHANES Dietary Supplement Database Overview

- 7000+ products currently in database
- Many types of products including:
 - Single vitamins/Minerals
 - Multivitamins/Multimineral
 - Botanicals
 - Amino Acids
 - Fish oils
 - Antacids containing calcium and/or magnesium
- Content of the database is determined by what survey participants have reported

Data Release

- We release supplement information from our dietary supplement database as well as participant information collected during the interview.
- Data is released in 2 year cycles.

Dietary Supplements

NHANES 1999-2000

- 1999-2002 data show that 51% of adults and 20-30% of children took at least 1 dietary supplement in the last 30 days.
- Most of the supplements were reported daily and had been taken for more than a year.
- In 1999-2000 approximately 24% of adults took antacids containing calcium and/or magnesium.

Uses for NHANES Data

1. Estimate the population prevalence and distribution of health conditions and related risk factors.
2. Monitor trends in health over time.
3. Study the relationship of nutrient intake, nutritional status indicators, and health over time.

NHANES 2001-2002

Contents at a Glance

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- [Survey Contents](#)
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Contents in Detail

- [Survey Questionnaires, Examination Components and Laboratory Components](#)
- [Survey Operations Manuals, Consent Documents, Brochures](#)

Using the Data

- [Analytic Guidelines](#)
- [NHANES Web Tutorial](#)
- [General Data Release Documentation](#)
- [Release Notes](#)

Data, Documentation, Codebooks, SAS Code

- [Demographics](#)
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Osteoporosis

Calcium, Vitamin D

- Estimate daily intake of calcium in the diet.
 - Calculate total calcium intake from dietary supplements and combine with total calcium intake from foods (24 hour recall).
 - Merge Dietary Supplement Data file with Food Data file
 - Food Propensity Questionnaire

Osteoporosis

Calcium, Vitamin D

- Total calcium intake
- Demographics
 - Age group
 - Race/ethnicity

Osteoporosis

Calcium, Vitamin D

- Questionnaire
 - Family history of osteoporosis
 - Biological mother with history of fractured hip?
Age when fracture occurred.
 - Smoking
 - Physical Activity
 - History of milk intake

Osteoporosis

Calcium, Vitamin D

Mobile Exam Center

- Exam
 - BMI (body measurements)
 - Bone density (body composition)
- Interview
 - Parity (reproductive health)

General Health, Multivitamins

- Multivitamin intake from dietary supplements data file and nutrient intake from 24 hour dietary recall
- Demographics
 - Age group
 - Race/ethnicity
 - Sex
 - Country of birth

General Health, Multivitamins

- Questionnaire
 - Perceived health status
 - Hospital utilization & Access to care
 - Smoking
 - Physical Activity
 - Prescription meds
 - Sleep
 - Food security
- MEC
 - BMI
 - BP
 - Labs
 - Mental health
 - Oral health
- Follow Up Data
 - Food Propensity Questionnaire

Obesity, Weight loss supplements

- Weight loss products reported from dietary supplement data and total calorie intake from 24 hour dietary recall.
- Questionnaire
 - Weight history
 - Physical activity
 - Diabetes
 - BP
- MEC
 - BMI
 - BP
 - Physical Activity Monitor
- Laboratory
 - Cholesterol, TG, HDL, LDL

Cardiovascular Disease

Fish oils, Niacin, Magnesium, Potassium

- Dietary Supplement data
- Questionnaire
 - Medical history
 - Hypertension
 - Prescription meds
 - Weight history
 - Physical activity
 - Diabetes
 - Smoking
- MEC
 - Exam
 - BMI
 - BP
 - Physical Functioning
 - Interview
 - Alcohol Use
 - Laboratory
 - TG, HDL, LDL
 - C-reactive protein
 - Homocysteine

Older Americans Multivitamins, Vitamin B-12, Supplements for Prostate Health, for Menopause, Fiber

- Dietary Supplement Data and nutrient intake from dietary recall
- Food Propensity Questionnaire

Older Americans Multivitamins, Vitamin B-12, Supplements for Prostate Health, for Menopause, Fiber

- Questionnaire
 - Perceived health
 - Use of community food programs
 - Physical activity
 - History of prostate problems
 - Social support
 - Food security
 - Prescription medication

Older Americans Multivitamins, Vitamin B-12, Supplements for Prostate Health, for Menopause, Fiber

- MEC
 - Bone density
 - Vision
 - Ophthalmology
 - Blood pressure
 - Alcohol use

Strengths of Data

- Nationally representative sample
- In-person interview
- Transcription of supplement name and manufacturer information from supplement container (88% of the time)
- Physical examination
- Measured height and weight

Limitations of Data

- Different reference periods for the Dietary Supplement Data collection (past 30 days) and the Dietary Interview (past 24-hours) (to change in 2007)
- Analysts must be aware of differences in 1999-2000 and 2001-2002 dietary supplements data

Limitations of Data

- Short reference time frame of the past month/ 30 days
- Recording supplement names from labels is still subject to error.
- Analytic verification of supplements actual ingredient content would be required to accurately depict nutrient content.

Data Analysis

- Data is released in 2 year cycles
- Refer to Documentation and Codebooks
- Review Analytic Guidelines
- Use appropriate weights

What's New

- 2003-2004 Dietary Supplement data release *coming soon!*
- 2003-2004 24 Hour Dietary Recall, Day 1 and Day 2 *just released!*
- 2003-2004 Food Propensity Questionnaire data *coming soon!*
- NHANES Web Tutorial now available!

Acknowledgements

- Office of Dietary Supplements
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<http://www.cdc.gov/nchs/nhanes.htm>



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EXTRA SLIDES

- Nutrients in supplements and antacids are 100% or more of the Dietary Recommended Intakes (DRI's)
- Exclusion of these nutrients would underestimate actual intake
- NHANES to collect dietary supplement and antacid intake after 24 Hour Recall

(For reference)

Dietary/Antacid Recall as part of the 24 Hour Dietary Recall

- Administered by dietary interviewers as a section of the 24-hour recall
- 24 hour recall, dietary and antacid supplement recall, post-recall questions
- Dietary/antacid recall section added to in-person and phone follow-up 24 hour dietary interviews
- In-person interviews – participants will use two handcards to assist them in their phone 24-hour dietary supplement recall section

Household Interview

- Family Questionnaire
- Participant Questionnaire

Household Interview Family Questionnaire

- Demographics
- Housing Characteristics
- Smoking
- Income
- Food Security

Household Interview Participant Questionnaire

- Diet Behavior
- Weight History
- Dietary Supplements
- Blood Pressure
- Cardiovascular Disease
- Diabetes
- Osteoporosis
- Antacids, prescription medication