SAMPLING PLANS FOR MULTIVITAMINS AND DIETARY SUPPLEMENTS CONTAINING OMEGA-3 ACIDS IN THE DSID

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DSID: What is it?
A database validated by analytical data, for key ingredients of public health importance in dietary supplements

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DSID Home Page

Welcome to the Dietary Supplement Ingredient Database (DSID) home page!

The Nutrient Data Laboratory (NDL), Beltsville Human Nutrition Research Center (BHNRC), part of the USDA Agricultural Research Service, working with the Office of Dietary Supplements, NIH, and other federal agencies, has developed a Dietary Supplement Ingredient Databases (DSID) to estimate levels of ingredients in dietary supplement products.

This first data release of the DSID (DSID-1) provides access to information on analyzed levels of nutrients in adult multivitamin/minerals (MVMs) used in the U.S. These estimates were derived from analytical data generated for a representative set of adult MVM products collected from various U.S. locations.

At this time, the DSID is intended primarily for research applications. For each of eighteen nutrients, product data were grouped by nutrient levels rather than by product names. Statistical regression analyses were used to estimate mean percent differences from label and variability at specific nutrient levels for each of the eight vitamins and ten minerals analyzed. These data are appropriate for conducting population studies of nutrient intake, rather than for assessing individual products.

The main features of DSID include data files, a research summary, and an adult MVM calculator. Regression equations are available for researchers with expertise to calculate multi-nutrient estimates of adult MVM supplement composition.

//dietarysupplementdatabase.usda.nih.gov
or
//dsid.usda.nih.gov
DSID First Release: DSID-1

- Provides analytically-based estimates of nutrient values in adult MVMs

- Data files include:
  1) Predicted values and SEs for 18 individual nutrients at a range of labeled levels for adult MVMs
  2) Links between nutrient estimates and NHANES files

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DSID Study Design Steps

1. Identify priority products and ingredients
2. Identify qualified labs and methods
3. Choose representative products using statistical sampling plans
4. Procure samples and analyze ingredients
5. Assess analytical data with statistical techniques
6. Publish Final Results

The steps are interconnected, forming a cycle.
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DSID Study Goals

- Adult & Children’s MVM study objectives:
  To examine relationships between label and analytical values for *vitamins and minerals* and assess variability for specific nutrients in *MVM products*.
  To provide nationally representative estimates for vitamins and minerals in commonly reported *MVM products*.

- Omega-3 study objectives:
  To investigate relationships between label and analytical levels of *EPA, DHA, ALA, and total omega-3s* and assess variability in *omega 3 fish, flaxseed, and blend products*.
  To provide nationally representative estimates for omega-3 levels in commonly reported *omega-3 products*, based on labeled content or other label information.
DSID Sampling Plan Strategy

Goal:
Choose representative dietary supplement products to analyze

Approach:
- Develop study-specific plan, using market reference data
- Purchase samples from multiple channels
- Purchase retail samples from multiple U.S. areas
- Obtain multiple lots
Reference Data for Sampling Plans

Recent NHANES (data files)
Independent marketing firms (user data)
Nutrition Business Journal (sales data)
Store surveys (observations)
Multi Ethnic Cohort, TEDDY, FDA (studies/reports)
Scientific and industry experts
Internet
Multiple Channels

RETAIL SALES

Mass Merchandisers

Drug Stores
Grocery Stores
Warehouse Club Stores
Multiple Channels

RETAIL SALES

Mass Merchandisers
- Drug Stores
- Grocery Stores
- Warehouse Club Stores

Natural Food/Health
- Health Food Stores
- “Nutrition” and “Vitamin” Stores
Multiple Channels

**RETAIL SALES**
- Mass Merchandisers
  - Drug Stores
  - Grocery Stores
  - Warehouse Club Stores

- **Natural Food/Health**
  - Health Food Stores
  - “Nutrition” and “Vitamin” Stores

**DIRECT SALES**
- Multi-level Marketers
- Internet
- Health Practitioners
Nationwide Sampling Map
Omega-3 Products Sampling Plan

Product Form Distribution

- Fish Oil: 70%
- Oil Blend: 15%
- Flax Seed Oil: 15%
Omega-3 Products Sampling Plan

Market Channel Distribution

- Mass Market: 56%
- Natural Food: 27%
- Direct: 17%
Sampling Plan: Omega-3 Fatty Acid Supplements

TOP—
Identified commonly reported products.
N=20
Goal: 6 lots/product

LMS —
Identified brands and forms.
Retail sales: N= 50
Direct sales: N=10
Goal: 3 lots/product
Sampling Plan:
Adult and Children’s MVMs

**TOP—**
Identified commonly reported products. Total >50% of market share.
- N=35 (adult)
- N= 20 (children’s)
Goal: 6 lots/product

**LMS —**
Identified, stratified, and randomly selected Lower Market Share products.
- N=80 (adult)
- N=45 (children’s)
Goal: 3 lots/product
Sampling Plans: Adult and Children’s MVMs

- Identified specific products for purchase, using market share information.

- Evaluated the labeled levels of products purchased, to identify any gaps in nutrient levels.

- Used market share information to weight analytical results for each product for regression analysis, for making predictions for national estimates.
Plans for DSID 2\textsuperscript{nd} Release

DSID-2

- Analytically-based estimates of children’s MVM nutrient values
- Updated adult MVM nutrient data

Data files:

1) Predicted values and SEs for prioritized nutrients at a range of labeled levels for children’s MVMs
2) Links between nutrient estimates and NHANES files
Summary

• Statistically-based sampling plans are necessary to identify representative products for chemical analysis for national estimates in DSID

• Sampling plan development is study-specific

• Current market-based references are essential

• Total nutrient estimates using data from dietary supplements plus food can be used for accurate assessment of total intake