National Health and Nutrition Examination Survey 2005–2006

Documentation, Codebook, and Frequencies

Dietary Supplement Use

General Documentation

Questionnaire

Survey Years:
2005 to 2006

October 2008

NHANES 2005–2006 Data Documentation

Questionnaire Section: Dietary Supplement Use (DSQ_D)

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Component Description

The Dietary Supplements section (DSQ) provides personal interview data on use of vitamins, minerals, herbals and other dietary supplements. This section also includes information on the supplement reported such as supplement name, ingredients, amounts, and serving size.

Eligible Sample

All survey participants are eligible for the dietary supplement questions.

Interview Setting and Mode of Administration

The Dietary Supplement questionnaire was done before the physical examination, in the home, using the Computer-Assisted Personal Interviewing-CAPI (interviewer-administered) system. Persons 16 years of age and older and emancipated minors were interviewed directly. A proxy provided information for survey participants who were under 16 years of age and for individuals who could not answer the questions themselves.

The Interviewer Procedure Manuals and Survey Questionnaires can be found on the NHANES website.

Quality Assurance & Quality Control

Data were routinely examined for discrepancies and erroneous entries. Trained nutritionists reviewed incoming data and matched reported supplements to known supplements from the NHANES database, where possible; sought additional supplement labels if feasible; assigned generic or default supplements as appropriate; transferred or removed inappropriate products; and assigned matching codes (confidence codes).

Data Processing and Editing

Data Collection Methods

During the household interview, survey participants are asked if they have taken a vitamin, mineral, herbal or any other dietary supplement in the past 30 days. Participants are shown a hand card that lists examples of dietary supplements (Appendix 1: Hand card DSQ1). Those who answer "yes" are asked to show the interviewer the dietary supplement containers of all the products used. For dietary supplements listed in Appendix 2: Vitamins/Minerals on the "Strength Only" List, only the strength is recorded. For all other dietary supplements reported, the interviewer enters the product's complete name from the container into a computer. If the container is not available, the interviewer asks the participant to verbally report the name of the dietary supplement. The interviewer then tries to find the supplement on a list created by NCHS. If an exact match of the dietary supplement cannot be found, the interviewer is instructed to select "product not on list" from the list. Interviewers can record up to 20 dietary supplements. The manufacturer is either selected from the manufacturer list or entered manually. The same process is also repeated for non-prescription antacids.

Participants are asked how long they have been taking the dietary supplement, how many times in the past 30 days they have taken it and how much do they take on the days they took the supplement.

The NHANES 2005-2006 dietary supplement questions can be accessed in the Dietary Supplements and Prescription Medications Section of the Sample Person Questionnaire.

Dietary Supplement Questions Included in this Data Release

- Was any dietary supplement taken in the past 30 days
- Number of dietary supplement(s) taken
- Dietary supplement name
- Was dietary supplement container seen by interviewer
- How long was supplement taken
- Number of days supplement taken in the past 30 days
- Quantity of dietary supplement taken daily
- Was any non-prescription calcium/magnesium-containing antacids taken in the past 30 days
- Number of non-prescription calcium/magnesium-containing antacids taken
- Information from the dietary supplement label, such as ingredients, amounts, serving size.

Matching reported supplements to products in the database and

obtaining product labels

Matching reported dietary supplements to known products

Trained nutritionists, at NCHS, match the product names entered or selected by the interviewer (including prescription supplements and antacids containing calcium or magnesium) to a known dietary supplement product when possible. These matches are made with varying degrees of precision, and a matching code (DSDMTCH) accompanies each match. The matches are: 1) Exact or near exact match; 2) Probable match; 3) Generic match; 4) Reasonable match; and 5) Default match. In some cases no match can be made with any certainty. These products are coded 6) No match. Products whose names were reported as "Refused" (7777) or "Don't know" (9999) have matching codes of 7 and 9, respectively. NCHS nutritionists first determine if the product is in our database. If it is, then nutritionist look at the date that the product label was entered to make sure it was entered within the cycle of data collection, which is a 2 year cycle. If the product label is not entered into the database, or the product label is old, NCHS nutritionist attempt to obtain a new product label.

NCHS attempts to obtain a label for each supplement reported by a participant from sources such as the manufacturer, distributor or retailer, the Internet, company catalogs, and the Physician's Desk Reference (PDR).

NCHS communicates with many major manufacturing company representatives to determine when various product re-formulations become available. Based upon manufacturer advice, we have used a lag time of 5 months after the new re-formulated product has hit the market. Despite these precautions, there is no guarantee that the product taken by respondents is the correct formulation.

NCHS created generic and default dietary supplements and entered these into the supplement database. Reported supplements for which the strength of all ingredients was known were matched to a generic supplement, i.e. one which had no brand name. These were generally single ingredient supplements which included a strength (e.g. vitamin C 500 mg) or multiple vitamins and/or mineral supplements made by a private label manufacturer that was known to us and for which we had a label with identical ingredients and strengths (e.g. brand X all-purpose multivitamin was reported, and we had a label for brand Y, made by the same manufacturer). These matches are coded as 3 (DSDMTCH=3).

When all ingredient strengths were not known, the supplement was matched to a default supplement where possible. Defaults were created for single ingredient and multiple ingredient supplements based on our own data of most frequently reported supplements of that type. These matches were coded as 5 (DSDMTCH=5). Created default products and the actual products or strengths that were assigned to these defaults are listed in Appendix 3 (Assigned default supplements and antacids).

The NCHS Dietary Supplements Database

NCHS maintains a dietary supplement database. This is not a comprehensive dietary supplements database and only contains dietary supplements and calcium and/or magnesium-containing antacids that have been reported in the NHANES survey since 1999. The ingredient information entered into the database is taken directly from the supplement facts box on the label or carton, if available, or the equivalent from other sources. NCHS nutritionist enter from the label: supplement name; manufacturer; serving size; form of serving size; ingredients and amounts, including an operator to indicate that the amount is less than, more than or equal to the amount.

NCHS does not verify the actual composition of supplements reported: the database is based on label information, not testing. The best information source is the label itself, but when this cannot be obtained, other sources are used. Information from other sources may not always be an accurate reflection of what is actually on the supplement label. This is true for the supplement's apparent name as well as for the ingredients. The apparent name on the container is most important, since interviewers see the supplement container and record the name as it appears to them. Differences from what appears on the label are particularly noted for information from the Internet (name and ingredients), the PDR (name), and supplement carton (name). In addition, supplements may change the appearance of a label and thus the apparent name without changing the content or may change content with minimal change to the label, or may change both. NCHS attempts to obtain updated labels as they come onto the market, but cannot guarantee complete success. The source of the supplement information (DSDSRCE) is included in the data release.

Ingredients may be listed in various ways, for example: in their elemental form (e.g. calcium); as compounds (e.g. calcium citrate); as plant forms (e.g. extract, concentrate, oil) or plant parts (e.g. root, leaf); as

percentages (e.g. beta carotene- % of vitamin A); and as blends or complexes (e.g. bioflavonoid complex; proprietary blend). Suggestions for conversion of compounds are contained in Appendix 4 (Conversion Factors for Supplement Nutrient Units to Food Units and for Nutrient Compounds to Elemental Nutrients). These are based upon literature searches, but may contain errors. Users should verify these conversions. Note especially that there are a number of conversions for ferrous sulfate depending upon its form, which was not always specified.

Some supplements contain proprietary blends of ingredients, generally non-nutrients. An amount is specified for the blend but not individual ingredients in the blend. In such cases, the blend and its amount are entered into the database, but the individual ingredients of the blend are listed without any amounts. A few supplement labels list ingredients but no amounts at all, so the amounts are missing.

Variables released from the NCHS dietary supplement database

DSDSUPP: Name of Supplement (Files 2, 3, 4)
This is the name from the dietary supplement product front label which is entered into the database. Matching the supplement, that the interviewers' record, to an actual product label is made with varying degrees of certainty. When no match could be made, meaning no corresponding product label could be found or a reasonable default product could not be assigned, these entries are counted as supplements, since there is no evidence that they are not supplements, but only the words "no product information available" are used in place of a name. Products with brand names that are available only in a limited region of the country are released with a generic name, not a brand name, to ensure participant confidentiality. Product names that were entered as "refused" or "don't know" are named "7777" and "9999", respectively.

NCHS collects brand name information on supplements whenever feasible, to ensure as much accuracy as possible in finding the label information for the exact product taken, and providing exact ingredient information for this product to data users. Products with very similar names but manufactured by different companies may contain different ingredient strengths.

Brand names are released for supplements matched with a high degree of product or brand certainty, as this information may be useful in the design of other surveys. However, matching of brand names to reported products may contain errors, and many matches are made to generic or default products, especially for private label brands. Thus, analyses of consumer usage by brand name using NHANES data may not be accurate and is not recommended. Brand names that are available in a limited geographic area of the U.S. are not released; generic names are used for these products.

DSDSUPID: Supplement ID Number Name of Supplement (Files 2, 3, 4)
These are numbers assigned by the database for each product entered. Supplement ID numbers are 10 digits long; all Supplement IDs begin with the number '1'. The next 3 digits (positions 2-4) are: '888' if the supplement was created by NCHS as a generic or default product; otherwise the digits in positions 2-4 are coded '000'. The next 4 digits (positions 5-8) are assigned by the database and do not indicate anything about the product. The last 2 digits (positions 9-10) indicate formulations of the same supplement: the first formulation entered into the database = 00, the first re-formulation = 01, the next = 02, etc. Note that these are reformulations of the same product: different versions (e.g. liquid vs. tablet, with iron vs. without iron, regular vs. high potency) have different 4 digit numbers (positions 5-8). When a product name was entered as "refused" or "don't know", the ID number is a string of 7's or 9's. When no match could be made, meaning no corresponding product label could be found or a reasonable default product could not be assigned, the ID number begins with a 6.

DSDSRCE: Supplement Information Source (File 3)
NCHS attempts to obtain a product label for each supplement reported by a participant from sources such as the manufacturer, distributor or retailer, the Internet, company catalogs, and the Physician's Desk Reference (PDR). Generic and default products do not have a source code. Some numbers are skipped intentionally as the associated sources weren't used.

Source of Supplement Information	
Code	**Label**
1	Directly from Manufacturer

2	Directly from Distributor
4	Inferred from supplement name
5	Physician's Desk reference (PDR)
7	Product Catalog
8	Internet Listing
9	Supplement Label or Carton
10	Supplement from the same manufacturer

DSDTYPE: Formulation Type (File 3)

Supplement formulation type (prenatal; infant/child; standard; and mature) is based upon the appearance of the label or specific wording indicating the targeted users.

Formulation Type	
Code	**Label**
1	Infant/pediatric formulation
2	Prenatal formulation
3	Mature formulation
4	Standard formulation

DSDSERVQ: Serving Size Quantity (File 3)

This is the "serving size" quantity, which is recorded from the product supplements facts panel.

Note: When calculating the amount of a nutrient consumed from supplements, it is important to take serving size into consideration. For some supplements, the serving size may be more than one tablet, drop, teaspoon, etc. In such cases, a person taking only one tablet, for example, would only be getting a percentage of the amount listed for that ingredient. In addition, the ingredient listed may be a compound (e.g. calcium carbonate), and the amount of elemental calcium needs to be calculated. Appendix 4 contains suggestions for conversions, but analysts are advised to confirm these.

DSDSERVU: Label Serving Size Unit (File 3)

This is the "serving size" unit, which is recorded from the product supplements facts panel. The codes are listed below.

Label Serving Size Unit

Code	Label		Code	Label
1	Caplet		22	Spray/Squirt
2	Capsule		24	Scoop/Powder
3	Dropper		25	Cup/Powder
4	Drop		27	Chew
5	Fluid Ounce		28	Other
6	Gel Cap		29	Vegicap
9	Lozenge		30	Can/Liquid
10	Milliliter		31	Capful
12	Package/Packet		32	Gumball
13	Pill		33	Gram/Powder
14	Tablespoon/Powder		34	Teaspoon/Powder
16	Softgel		35	Can/Powder
17	Tablespoon/Liquid		36	Scoop/Liquid
18	Tablet		37	Cup/Liquid
19	Teaspoon/Liquid		38	Gram/Liquid
20	Wafer		39	Drop/Lozenge
21	Ounce/Powder		42	Strips
			99	Unknown Dosage Form

DSDSERVA: Alternative Serving Size (File 3)

This is listed in labels for some products. Not all products offer an alternative serving size.

Label may include alternative serving size (e.g. 1 dropperful = 1 mL).

DSDINGID: Ingredient ID (File 4 and 5)
This is the ingredient ID created by our database for each ingredient recorded from the product label supplements facts panel.

DSDINGR: Ingredient name (File 4 and 5)
Ingredient names are recorded from the product label supplements facts panel.

DSDOPER: Ingredient operator (File 4)
This is a symbol =, < , or > that comes from the product label supplements facts panel.

DSDQTY: Ingredient quantity (File 4)
Ingredient quantity is recorded for each ingredient listed from the product label supplements facts panel.

DSDUNIT: Ingredient unit (File 4)
Ingredient unit is recorded for each ingredient listed from the product label supplements facts panel.

Ingredient Units

Code	Label		Code	Label
1	MG		17	LACU
2	IU		18	X
3	%		19	PPB
4	Mcg		20	TRACE
5	GM		21	UNKNOWN
6	ML		22	PU
7	KCAL		23	SEU
8	DU		24	INVU
9	HUT		25	°DP
10	LU		26	HCU

11	CU		27	GFU
12	ENDO-PGO		28	GALU
13	AGU		29	ALU
14	PPM		30	FTU
15	MILLION		31	NG
16	BILLION			

DSDCAT: Ingredient category (File 4)

There are ingredient categories: Vitamin, Mineral, Botanical, Others, Amino Acid. These are assigned by NCHS staff. See Appendix 5 for further information on how ingredients are classified.

Ingredient categories

Code	Label
1	Vitamin
2	Mineral
3	Botanical
4	Other
5	Amino Acid

DSDCNT: number of ingredient categories in each supplement (File 3)

This variable gives the number of ingredients of each type in the supplement, including in blends.

DSDCNTV : number of vitamins in the product
DSDCNTM : number of minerals in the product
DSDCNTA : number of amino acids in the product
DSDCNTB : number of botanicals in the product
DSDCNTO : number of other ingredients in the product

Note: For each supplement, this is the number (count) of ingredients in

each ingredient category (vitamin, mineral, amino acid, botanical, other) listed in the facts box on the label, including ingredients listed within blends. In a few products with blends, the same vitamin or mineral was listed as both an ingredient with an amount and as part of a blend. In these cases, the vitamin or mineral was only counted as one.

DSDBLFLG: Blend Flag (File 4)
This indicator variable denotes whether an ingredient is a blend or is not a blend.

DSDBCLID: Blend component id (File 5)
These are ingredient ID numbers for blend ingredients.

DSDBCNAM: Blend component name (File 5)
These are ingredient names for blend ingredients. Blends in products will not give the actual breakdown of ingredient quantities in the blend. The ingredients will usually just be listed, and most of the time a whole blend amount is given.

DSDBCCAT: Blend component category (File 5)
There are ingredient categories for each blend ingredient: Vitamin, Mineral, Botanical, Others, Amino Acid. These are assigned by NCHS staff. See Appendix 5 for further information on how ingredients are classified.

Ingredient Classification

Code	Label
1	Vitamin
2	Mineral
3	Botanical
4	Other
5	Amino Acid

Data Editing

When a variable was modified globally, as part of the editing process, the third letter in the variable name was changed from a Q (i.e. DS**Q**) to a D (i.e. DS**D**).
Variables that were obtained or generated from an external database (i.e.

dietary supplement database) will also have the letter “D” in the third position of the variable name.

Dietary supplements incorrectly reported in subsections of questionnaire:

Prescription and non-prescription dietary supplements that were incorrectly reported in the nonprescription antacid section of the questionnaire were removed from the nonprescription antacid file and added to the dietary supplement file. All non-prescription antacids that contained calcium and/or magnesium were moved to the dietary supplement file.

Prescription supplements are released in the Dietary Supplements Data File. Some prescription medications were mistakenly recorded in the dietary supplement section. These were removed and added to the prescription medication file. Any prescription dietary supplement that was incorrectly reported in the prescription medication section was removed from the prescription medication section and moved to the dietary supplement section. Strength and details of the persons’ usage are missing for these supplements, because these questions are not asked in the prescription medication questionnaire. The following products were moved to the dietary supplements files from the prescription medication file:

- All calcium products except calcium acetate
- All fluoride products except those in topical gel or cream forms (e.g., stannous fluoride)
- Over-the-counter niacin, niacinamide, and nicotinic acid.

All prescription niacin, potassium, and sodium products were retained in the prescription medication file.

Specific variables and edits:

DSD010: Have you used or taken any vitamins, minerals or other dietary supplements in the past 30 days? Include prescription and non-prescription supplements.

This variable was the lead-in question to the series of questions on dietary supplement use. This variable was edited and takes into account dietary supplements reported in this section as well as dietary supplements moved in from the prescription medication or nonprescription antacid sections of the questionnaire.

A small number of persons refused to answer this question (coded 7) or did not know whether they used a dietary supplement in the past month (coded 9).

DSDCOUNT: The number of dietary supplements taken

This variable was computed at NCHS and represents the total number of dietary supplements reported by the respondent including those dietary supplements identified as unknown (DSDSUPID = 666XXXXX). The count has been adjusted for all dietary supplements moved into and those moved out of the dietary supplements section. Antacids that were reported in the dietary supplement section were assumed to be taken as a supplement and also included in the count (DSDANTA=1). Antacids reported in the non-prescription antacid section or the prescription medication section do not contribute to this count (DSDANTA=2). There were also participants who reported the use of a dietary supplement in the past 30 days (DSD010 = 1) but did not know the name of the dietary supplement (DSDSUPID = 99999) or refused to report the name of the dietary supplement (DSDSUPID = 77777). Each product reported as refused or don't know is still included in the total count of dietary supplements used under DSDCOUNT.

DSD010AN: Any non-prescription antacids taken?

This variable was created at NCHS to indicate whether or not non-prescription calcium and/or magnesium antacids were reported in other sub-sections of the questionnaire. This variable only takes into account these types of antacids reported in the non-prescription antacid section or the prescription medication section. There were a few non-prescription calcium/magnesium-containing antacids reported in the dietary

supplement section and these were included in DSD010 and DSDCOUNT.

DSDANCNT: The number of non-prescription calcium and/or magnesium - containing antacids taken.

This variable was computed at NCHS and represents the total number of non-prescription calcium and/or magnesium containing antacids reported by the respondent. Only antacids reported in the non-prescription antacid section or the prescription medication section contribute to this count (DSDANTA=2). Antacids that were reported in the dietary supplement section were assumed to be taken as a supplement and included in the dietary supplement count (DSDANTA=1).

DSDANTA: Created variable that indicates whether an antacid was reported in the dietary supplements section or the Antacid section of the questionnaire.

Information on use of non-prescription antacids was sometimes recorded in the dietary supplement section; other times in the antacid sub-section of the medication section. Due to their nutrient content, antacids that contain calcium or magnesium are released with the dietary supplement data, irrespective of where they were reported. Only these antacids are reported; this is not a complete accounting of all antacids. Thus, users are cautioned that analyses of these data to estimate the percentage of antacids used as dietary supplements would not be appropriate.

Code	Label
0	Non-antacid supplement
1	Antacid reported with dietary supplements (DSQ)
2	Antacids reported in the non-prescription antacid section or antacids reported with prescription medications (RXQ)

For a few participants, the same antacid was recorded in both questionnaire sections. In these instances, the antacid was considered to be in the DSQ section and coded as 1.

DSDMTCH: matching code confidence codes

Supplements are recorded in the household interview with varying degrees of accuracy and completeness. NCHS has created a system to specify how certain we are with matching a supplement recorded during the interview with the actual supplement label. Analysts should be aware that for default matches and matches that chose between several similarly named supplements, there is less certainty that the ingredients

and ingredient amounts in the supplement assigned exactly match those in the supplement actually taken. Additionally, NCHS cannot guarantee in any case that the matched product was the exact product taken or even that any product actually was taken, as these data are self-reported.

Code	Label	Description
1	Exact or near exact match	this is the only product that could match this entry
2	Probable match	The match is not exact, but knowledge of the company's products strongly suggests that this is the only possible match choice. For example the entry may not specify strength or include words such as timed release, but no other options are available for this brand according to manufacturer or retailer information.
3	Generic match	product has known strength for all ingredients, either a) as part of name (e.g. vitamin C 500 mg) or b) because the manufacturer is known and NCHS has an identical product made by this manufacturer for a different distributor or retailer. Thus the ingredients and amounts are considered to be accurate despite an exact brand match.
4	Reasonable match	the product name may be incomplete or could be complete but other products of this brand also start with these same words so this cannot be assured. In these cases, the entered name is matched to either: a) the most frequently reported of these products in the NHANES 2005-2006 data, if this could be determined; b) the best selling product by this company that matches the entered name; or c) the most basic product by this company, as assessed by label wording.

5	Default match	the exact product could not be obtained because the name was imprecise or the exact brand product could not be located and no generic could be assigned. In these cases, the entered product was matched to a created default product based upon: a) the most commonly reported strengths for single ingredients; b) the most commonly reported brands for major multiple ingredient products such as multivitamins and multivitamin/multiminerals for children, seniors, or adults, if available; or c) products manufactured by a large, private-label manufacturer. Because NHANES 1999-2000 data and sales data indicate that far more people take multivitamin/multiminerals rather than just multivitamins; that numerous supplement labels calling a product a multivitamin actually also contain minerals; and that products that only exist as multivitamin/minerals are often named by NHANES participants as multivitamins, supplements recorded as multivitamins without further identifying information are matched to multivitamin/multiminerals, not multivitamins.
6	No match	no product could be found and there was not enough detail in the name to assign a generic or default match with any confidence. The words “no product information available” are listed as the product name.
7	Refused	product name was refused
9	Don’t know	product name was not known

DSD070: Dietary supplement container seen by interviewer?

This variable indicates whether the dietary supplement container was seen. Containers are seen approximately **88%** of the time. A more precise name for a supplement can be recorded by the interviewer, and thus a more precise match to a known supplement can be made, when the interviewer sees the supplement container rather than recording the participant's report of the supplement name (for example, multivitamin/multiminerals are often reported as multivitamins). In general, this is reflected in the matching code, but analysts should be aware that precision is greater when a container is seen.

This variable is mostly unedited. Interviewers ask to see the containers in all three subsections of the Dietary Supplements and Prescription Medications Section. Therefore, any dietary supplements moved into the dietary supplement file will contain this information. In 2005-2006, this indicator was accidentally left off the non-prescription antacid questionnaire. For these records, DSD070 will be missing.

DSD090: For how long have you been taking this product or a similar type of product?

This variable was created from a two-part (number and unit) question and indicates how long the respondent reported taking each dietary supplement. The data from variables: DSQ096Q/U (dietary supplement section), RXQ180Q/U (non-prescription antacid section and RXQ260Q/U (prescription medication section) were combined. Responses were recorded in days, weeks, months, and years. To facilitate analysis, all answers were converted to days using conversion factors of 7 days per week, 30.4 days per month, and 365 days per year. There were persons who reported the use of a dietary supplement but did not know how long they had been using the product (DSD090 = 99999) or refused to report the length of use (DSD090 = 77777). There were also persons who reported the use of a dietary supplement but did not report the length of use. DSD090 is missing for these persons.

DSD103: In the past 30 days, on how many days did you take the product?

This variable is mostly unedited. It combines data from two variables: DSQ103 (dietary supplement section) and RXQ191 (non-prescription antacid section). This information is missing for dietary supplement data that was recorded in the prescription medication section, since this question is not asked in this sub-section.

DSD122Q/U: On the days that you took the product how much did you} usually take on a single day?

These two variables are mostly unedited. They do contain data which combined variables: DSQ122Q and DSQ122U (dietary supplements section) and RXQ214Q and RXQ214U (non-prescription antacid section). This information is missing for dietary supplement data that was recorded in the prescription medication section, since this question is not asked in this sub-section.

The data was edited to take into account label serving size. For example, if a respondent reported taking 1 tablespoon of a supplement and the label serving size was 3 teaspoons, than the variable was edited to 3 teaspoons (1 tablespoon = 3 teaspoons).

In some cases the reported serving size is in different units than the label serving size. For example, the respondent may have reported 1 tablet, but the label serving size is 1 tablespoon. This was assumed to be an error in reporting or an interviewer error in data collection. In these cases the serving size was assumed to be the label serving size. There were 86 records in which this occurred and the data was edited to the label serving size. All records that were assigned a default product were edited and the default serving size was assumed.

Reported Serving Size Units (DSD122U)

Code	Label		Code	Label
1	Tablets, capsules, pills, caplets, softgels, gelcaps		18	Cups
2	Droppers		19	Sprays/Squirts
3	Drops		20	Chews
6	Lozenges		21	Scoop
7	Milliliters		22	CC
10	Powder/Granules		23	Capful
11	Tablespoons		24	MG

12	Teaspoons		25	Units
13	Wafers		26	Gulp
15	Cans		27	Ounces
16	Grams		28	Packages/Packets
17	Dots		29	Vial
			30	Gumball
			31	Strips

Analytic Notes

The 2-year sample weights (WTINT2YR, WTMEC2YR) should be used for NHANES 2005-2006 and 2003-2004 analyses. There are no 4-year weights in these files. The 4-year weights were provided with the NHANES 2001–2002 release file because there were some transition issues related to the use of 1990 Census and 2000 Census information. Detailed instructions for linking earlier datasets (1999–2000 and 2001–2002) are provided in the NHANES Analytic Guidelines.

Since this data is collected during the household questionnaire, interview weights should be used. Although these data were collected as part of the household questionnaire, if they are merged with the MEC exam data, exam sample weights should be used for the analyses. Please refer to the Analytic Guidelines for further details on the use of sample weights and other analytic issues. The Analytic Guidelines are available on the NHANES website.

Using self-reported data

NHANES data are self-reported and recorded by interviewers, and thus may contain inconsistencies or errors. Some inconsistencies were edited, however, users may notice situations that still need editing. Users are advised to assess the data and edit it as deemed appropriate for the analyses being undertaken.

Use of format libraries

The text labels for supplements, ingredients, units, etc. are provided in a separate data file called “Supplement Format File (DSQFMT)” in order to keep the data files a reasonable length. Please refer to Appendix 7 (Instructions for Use) for details. SAS code to link the Supplement Format File with the data files or to obtain a list of formatted text labels is provided in the documentation. A list of the supplement and ingredient ID numbers and names can be made by running a proc freq of these variables and using the format library to link the name to the ID number.

Deriving nutrient estimates from dietary supplement data

Dietary supplement and antacid intake data (DSQ) refer to the past 30 days. The data necessary for computation of total nutrient intake are:
personal usage data (DSQ files 1& 2); dietary supplement composition data (DSQ files 3, 4, 5)

The analyst must combine these files: File 1 portrays a participant’s overall use of supplements; file 2 refers to the person’s usage of one particular supplement; and files 3, 4, and 5 refer to the content of one specific supplement.

DSQ codebooks, documentation, and data are described in the questionnaire section of this data release.

Dietary supplement data were reported as times per month in 1999-2000 and days in the past month in 2001-2002, and days in the past 30 days in 2003-2006. For participants who took one supplement each day, one time per day, daily nutrient intake from supplements can be estimated directly from the label ingredients.

Intake of multiple supplements with the same nutrient(s), multiple use of the same supplement on the same day, and nutrients in blends must be taken into account in nutrient calculations. Nutrient names and the quantity units need to be synchronized and nutrient amounts from all these calculations must then be summed. Some nutrient amounts are for a nutrient compound (generally a foreign-made product or an antacid) and these must be converted to a nutrient amount (See Appendix 5 for recommended conversions).

If one or more supplements were taken less than daily, estimation of supplement nutrient intake could be calculated for a month, a daily average, highest possible daily intake, or lowest non-zero intake.

See analytic notes above and Appendix 6 for information on how to link the files containing the person, supplement, and ingredient variables.

Combining nutrient estimates from dietary supplement plus food- recall data

To estimate total dietary nutrient intake, nutrients from diet, supplements, and antacids should be combined. Because of different data collection, referent time periods, and release systems, these data require some manipulation and assumptions to combine. Consequently, the resultant total may not provide a very accurate estimate of daily total nutrient intake nor is a variance estimate directly available. This would need to be calculated using special programs developed for this purpose (e.g. C-Side).

Deriving nutrient quantity from dietary supplement requires extracting the nutrient content of each supplement, as described above. Dietary recall data (DRX) are released as total combined nutrient amount from all foods reported on the one day dietary recall; no derivation is needed (e.g. calcium quantities from all food sources are combined and released as a single one day quantity). RXQ codebooks, documentation, and data are located in the exam section of the data release.

Because of the different time referents for dietary supplement and food intake, an analyst must decide upon the most useful way to combine these data to estimate intake for a given purpose. For example, if supplement use was reported to be daily, the nutrient value from the supplement could be simply added to the recall nutrient value, although the time frames do not overlap. When some or all supplements were taken less than daily (1999-2000) or less than 30 times a month (2001-2006), the nature of the analysis and the data itself should guide the decision about nutrient calculation.

For instance, if a supplement were taken nearly monthly, an analyst could:
1) assume intake to be daily;
2) calculate monthly intake based on intake frequency;
3) calculate average daily value from the monthly value; or
4) analyze data only from people who took supplements daily

The latter would mean that the sample would no longer be representative of all supplement users, but should represent daily supplement users.

Because of the data differences, combining nutrient intake from these different variables to estimate total nutrient intake requires thoughtful consideration of the analytic goal and methods, and deserves accurate description of methods, assumptions, and weaknesses in any presentation of results.

References

Appendices

Appendix 1: Handcard DSQ1	
ANTACIDS TAKEN AS A CALCIUM SUPPLEMENT	Tums Antacid/Calcium Supplement™, Tums E-X Antacid/Calcium Supplement™
BOTANICALS, HERBS, AND HERBAL MEDICINE PRODUCTS	Echinacea, ginseng, gingko, St. John's Wort, kava kava, dong quai, saw palmetto
FIBER TAKEN AS A DIETARY SUPPLEMENT	Fiberwafers™, Florafiber™, Herb-lax™, Psyllium™, Metamucil™, Fibercon™
INDIVIDUAL OR SINGLE VITAMINS	Vitamin A, vitamin C, or vitamin E
MULTIPLE VITAMINS (2 OR MORE COMBINED)	B-complex,Centrum™, Flintstones™, vitamins C and E
INDIVIDUAL OR SINGLE MINERALS	Calcium, copper, iron, or zinc
MULTIPLE MINERALS (2 OR MORE COMBINED)	Iron and zinc, or calcium and magnesium
VITAMIN AND MINERAL COMBINATIONS	Centrum™ with minerals, Flintstones with iron™, Calcium plus Vitamin D
COMBINATIONS OF VITAMINS, MINERALS AND OTHER PRODUCTS	One-a-Day™ with Ginkgo
AMINO ACIDS	Lysine, methionine, and tryptophan
FISH OILS	Omega-3 fatty acids
GLANDULARS	Pancreas, liver, and organ extracts
ZINC LOZENGES	Coldeeze™

Include products formulated to improve athletic performance, muscle strength, memory, increase energy, etc.

Appendix 2: Vitamins/Minerals on the "Strength Only" List		
Vitamin A	Calcium	Potassium
Vitamin B6	Chromium (Chromium Picolinate)	Selenium
Vitamin B12	Folate (Folic Acid)	Zinc (Zinc Gluconate)
Vitamin C	Iron (Ferrous Xxxate)	Vitamins A & D
Vitamin D	Magnesium	Calcium & Vitamin D
Vitamin E		Calcium & Magnesium

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
Alfalfa	500 mg	Most Commonly Reported Strength
Aloe Vera Gel	25 mg	Commonly Available Strength
B 50 B-Complex	Vitasmart B 50 B-Complex	Commonly Available Product
Balanced B 100 B-Complex	Vitasmart Balanced B 100 B-Complex	Commonly Available Product
B-Complex With Vitamin C	Nature Made B-Complex With Vitamin C	Commonly Available Product
Beta Carotene	25,000 IU	Most Commonly Reported Strength
Betaine Hydrochloride	650 mg	Commonly Available Strength
Bilberry	80 mg	Commonly Available Strength
Biotin	1000 mcg	Commonly Available Strength
Black Cohosh	540 mg	Most Commonly Reported Strength
Calcium	600 mg	Most Commonly Reported Strength

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
Calcium & Magnesium	Calcium 1000 mg, Magnesium 500 mg	Commonly Available Strength
Calcium + Magnesium 125 mg	Calcium 250 mg, Magnesium 125 mg	Commonly Available Strength
Calcium + Magnesium Liquid	Calcium 1000 mg, Magnesium 500 mg	Commonly Available Strength
Calcium + Soy	Caltrate 600 + Soy with Soy Isoflavones	Commonly Available Product
Calcium + Vitamin D 125 IU	Calcium 500 mg, Vitamin D 125 IU	Most Commonly Reported Strength
Calcium 250 mg With Vitamin D	Calcium 250 mg, Vitamin D 125 IU	Commonly Available Strength
Calcium 500 mg With Vitamin D	Calcium 500 mg, Vitamin D 200 IU	Most Commonly Reported Strength
Calcium 600 mg With Vitamin D	Calcium 600 mg, Vitamin D 200 IU	Most Commonly Reported Strength
Calcium 630 mg With Vitamin D	Calcium 630 mg, Vitamin D 400 IU	Commonly Available Strength
Calcium 800 mg With Vitamin D	Calcium 800 mg, Vitamin D 200 IU	Commonly Available Strength
Calcium Magnesium & Zinc	Vitasmart Calcium Magnesium & Zinc	Commonly Available Product
Calcium Polycarbophil Caplets	Fibercon	Commonly Available Product
Calcium With Vitamin D	Calcium 600 mg, Vitamin D 200 IU	Most Commonly Reported Strength
Chewable Multivitamin With Fluoride	Copley Chewable Multivitamin With Fluoride (1mg)	Commonly Available Product

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
Children's Multivitamin/Multimineral	Flintstones Complete Children's Multivitamin/Multimineral	Commonly Available Product
Children's Multivitamins Plus Iron	Flintstones Plus Iron Children's Multivitamins	Commonly Available Product
Chromium Picolinate	Chromium 200 mcg	Most Commonly Reported Strength
Cod Liver Oil Softgels	Vitasmart Cod Liver Oil Softgels	Commonly Available Product
Coenzyme Q-10	50 mg	Most Commonly Reported Strength
Copper	2 mg	Commonly Available Strength
Cranberry	300 mg	Commonly Available Strength
Creatine Monohydrate	5000 mg (5 G)	Most Commonly Reported Strength
Daily Multiple Vitamins Plus Iron	Perrigo Daily Multiple Vitamins Plus Iron	Commonly Available Product
Dairy Digestive Caplets	Lactaid Original Formula	Commonly Available Product
Echinacea	400 mg	Most Commonly Reported Strength
Echinacea & Goldenseal	Echinacea 100 mg, Goldenseal 100 mg	Commonly Available Strength
Ester-C	Your Life Ester-C 500 mg With Bioflavonoids	Commonly Available Product
Fat Burner	Weider Fat Burners	Commonly Available Product
Fish Oil	1000 mg	Most Commonly Reported Strength

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
Flax Seed Oil	1000 mg	Commonly Available Strength
Flaxseed and Borage Oil	Spectrum Essentials Flax Borage Oil	Commonly Available Product
Fluoride Tabs	Sodium Fluoride 1.1 mg	Commonly Available Strength
Folic Acid	400 mcg	Most Commonly Reported Strength
Garlic	500 mg	Most Commonly Reported Strength
Gelatin	600 mg	Commonly Available Strength
Ginkgo Biloba	60 mg	Most Commonly Reported Strength
Ginseng	500 mg	Most Commonly Reported Strength
Glucosamine	500 mg	Commonly Available Strength
Glucosamine Chondroitin	Glucosamine 500 mg, Chondroitin 400 mg	Commonly Available Strength
Glucosamine Chondroitin & MSM	Spring Valley Glucosamine Chondroitin Plus MSM	Commonly Available Product
Grapeseed Extract	150 mg	Most Commonly Reported Strength
Gummy Bear Multivitamin	L'il Critters Gummy Vites	Commonly Available Product
Iron	65 mg	Most Commonly Reported Strength
Lactobacillus Acidophilus	10 mg	Commonly Available Strength

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
Lecithin	1200 mg	Most Commonly Reported Strength
Liquid Colloidal Minerals	GNC Liquid Multi Colloidal Minerals	Commonly Available Product
Lysine	500 mg	Most Commonly Reported Strength
Magnesium	250 mg	Most Commonly Reported Strength
Men's Multivitamin/Multimineral	One A Day Men's Health Formula	Most Commonly Reported Product
MSM	1000 mg	Most Commonly Reported Strength
Multivitamin / Multimineral	Centrum Advanced Formula High Potency Multivitamin Multimineral with Lutein / Lycopene	Most Commonly Reported Product
Multivitamin And Fluoride Drops	Enfamil Poly-Vi-Flor 0.25 mg Multivitamin And Fluoride Drops	Commonly Available Product
Multivitamin Plus Iron	The Medicine Shoppe Daily Multiple Vitamins Plus Iron	Commonly Available Product
Niacin (Vitamin B-3)	500 mg	Most Commonly Reported Strength
PABA	100 mg	Commonly Available Strength
Pantothenic Acid (Vitamin B-5)	250 mg	Most Commonly Reported Strength
Pediatric Iron Drops	Fer-In-Sol Iron Drops	Commonly Available Product

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
Polyvitamin And Fluoride Chewable Tablets	Enfamil Poly-Vi-Flor 0.25 mg Multivitamin And Fluoride Chewable Tablets	Commonly Available Product
Polyvitamin Chewable Tablets	Enfamil Poly-Vi-Sol Multivitamin Chewable Tablets	Commonly Available Product
Poly-Vitamin Drops	Enfamil Poly-Vi-Sol Vitamin Drops	Commonly Available Product
Potassium	99 mg	Most Commonly Reported Strength
Prenatal Vitamins	Stuart Prenatal Vitamins	Commonly Available Product
Protein Powder	GNC Pro Performance 100% Whey Protein Instantized, Chocolate Powder	Commonly Available Product
Psyllium Fiber	Metamucil Powder Original Texture Regular Flavor Dietary Fiber	Most Commonly Reported Product
Saw Palmetto	160 mg	Commonly Available Strength
Selenium	200 mcg	Most Commonly Reported Strength
Senior Multivitamin / Multimineral	Centrum Silver Multivitamin / Multimineral For Adults 50+ From A To Zinc with Lutein / Lycopene	Most Commonly Reported Product
Shark Cartilage	500 mg	Commonly Available Strength
Siberian Ginseng	500 mg	Commonly Available Strength
Sodium Fluoride Drops	Teva Sodium Fluoride Drops Rx Only (0.25 mg)	Commonly Available Product

Appendix 3: Created Default Supplements and Antacids

Default Supplement	Assigned Strength or Supplement	Selection of Assigned Strength or Supplement Based On:
St. John's Wort	300 mg	Most Commonly Reported Strength
Stress Vitamins	Perrigo Stress Formula High Potency Stress Formula Vitamins	Commonly Available Product
Tri-Vitamin Drops	Enfamil Tri-Vi-Sol Vitamins A, D, & C Drops	Commonly Available Product
Tri-Vitamin With Fluoride Drops	Enfamil Tri-Vi-Flor 0.25 mg Vitamins A, D, C And Fluoride Drops	Most Commonly Reported Product
Vitamin A	10,000 IU	Most Commonly Reported Strength
Vitamin A & D	Vitamin A 1000 IU, Vitamin D 400 IU	Commonly Available Strength
Vitamin A 5000 IU + Vitamin D	Vitamin A 5000 IU, Vitamin D 400 IU	Commonly Available Strength
Vitamin B-1 (Thiamin)	100 mg	Most Commonly Reported Strength
Vitamin B-12	500 mcg	Most Commonly Reported Strength
Vitamin B-6	100 mg	Most Commonly Reported Strength
Vitamin B-Complex	Member's Mark Vitamin B-Complex	Commonly Available Product
Vitamin C	500 mg	Most Commonly Reported Strength
Vitamin D	400 IU	Most Commonly Reported Strength

Appendix 3: Created Default Supplements and Antacids

Default Supplement	**Assigned Strength or Supplement**	**Selection of Assigned Strength or Supplement Based On:**
Vitamin D Liquid	400 IU	Commonly Available Strength
Vitamin E	400 IU	Most Commonly Reported Strength
Vitamins C & E	Vitamin C 500 mg, Vitamin E 400 IU	Commonly Available Strength
Whey Protein	GNC Pro Performance 100% Whey Protein	Commonly Available Product
Zinc	50 mg	Most Commonly Reported Strength
Default Antacid	**Antacid Assigned**	**Selection of Assigned Antacid Based On:**
Default Antacid Anti-Gas Liquid	Mylanta Regular Strength Antacid Anti-Gas Liquid	Commonly Available Product
Default Antacid Liquid	Maalox Antacid Liquid	Commonly Available Product
Default Calcium Antacid	Tums Regular Strength	Commonly Available Product
Default Calcium and Magnesium Antacid Tablets	Rolaids Original Antacid	Commonly Available Product
Default Calcium Antacid Maximum Strength Tablets	Tums Ultra Maximum Strength	Commonly Available Product

Appendix 4: Conversion Factors for Supplement Nutrient Units to Food Units and for Nutrient Compounds to Elemental Nutrients		
INGREDIENT	**INGREDIENT_ID**	**CONVERSION FACTOR**
Vitamin A Conversion Factors		
ALPHA CAROTENE	10000656	1 IU alpha carotene = 7.2 mcg vitamin A
ALPHA CAROTENE	10000656	1 RAE = 24 mcg alpha carotene
BETA CAROTENE	10000433	1 IU beta carotene = 0.6 mcg vitamin A
BETA CAROTENE	10000433	1667 IU beta carotene = 1 mg beta carotene
BETA CAROTENE	10000433	1 RAE = 12 mcg beta carotene
VITAMIN A*	10000381	1 IU = 0.3 mcg vitamin A
VITAMIN A*	10000381	1 RAE = 1 mcg vitamin A
CRYPTOXANTHIN	10000686	1 RAE = 24 mcg cryptoxanthin
Vitamin D Conversion Factor		
VITAMIN D†	10000385	40 IU vitamin D = 1 mcg
Vitamin E		
VITAMIN E‡	10000386	1 IU = 0.67 mg vitamin E
Calcium Conversion Factors		
CALCIUM CARBONATE	10000611	40% elemental calcium
CALCIUM L-THREONATE	10004220	12.9 % elemental calcium
CALCIUM PANTOTHENATE	10000437	91.6% pantothenate
Iron Conversion Factor		
FERROUS FUMARATE	10000863	32.9% elemental iron
Glucosamine Conversion		

Appendix 4: Conversion Factors for Supplement Nutrient Units to Food Units and for Nutrient Compounds to Elemental Nutrients		
INGREDIENT	**INGREDIENT_ID**	**CONVERSION FACTOR**
Factors		
GLUCOSAMINE HYDROCHLORIDE	10000453	83.0% glucosamine
GLUCOSAMINE SULFATE	10000157	65% glucosamine
GLUCOSAMINE SULFATE .2 KCL	10000935	29.6% glucosamine
D-GLUCOSAMINE SULFATE.2 NACL	10001109	31.3% glucosamine
Magnesium Conversion Factors		
MAGNESIUM CARBONATE	10000625	28.9% elemental magnesium
MAGNESIUM HYDROXIDE	10000612	41.7% elemental magnesium
MAGNESIUM PHOSPHATE TRIBASIC	10000688	27.7% elemental magnesium
MAGNESIUM TRISILICATE	10002215	18.3 % elemental magnesium
Vitamin B-6 Conversion Factor		
PYRIDOXINE HYDROCHLORIDE	10000523	82% vitamin B-6
Other		
CHROMIUM PICOLINATE	10000541	12.4% elemental chromium
CHOLINE BITARATE	10000091	41% choline
CHOLINE CITRATE	10002418	41% choline
CREATINE MONOHYDRATE	10000533	88% creatine
CYSTEINE HCL	10000857	76.9% cysteine

Appendix 4: Conversion Factors for Supplement Nutrient Units to Food Units and for Nutrient Compounds to Elemental Nutrients		
INGREDIENT	**INGREDIENT_ID**	**CONVERSION FACTOR**
DOCUSATE SODIUM	10000122	5.1% sodium
GLUTAMIC ACID HYDROCLORIDE	10000725	80.1% glutamic acid
L-CYSTEINE HCL	10000542	69.0% cysteine
L-GLUTAMIC ACID HCL	10000683	80.1% glutamic acid
L-LYSINE HCL	10000820	80.03% lysine
LYSINE HYDROCHLORIDE	10002249	80.03% lysine
POTASSIUM CHOLRIDE	10000305	52.5% elemental potassium
POTASSIUM PHOSPHATE	10000644	28.7% elemental potassium
POTASSIUM PHOSPHATE MONOBASIC	10000687	28.7% elemental potassium
THIAMIN MONONITRATE	10000520	92% thiamin
ZINC PICOLINATE	10002820	21.1% elemental zinc
Basic Unit Conversion		
1 gm = 1000 mg		
1 mg = 1000 mcg		

* Conversion factor used for Vitamin A is Retinol, most common form
† Conversion factor for Calciferol
‡ Conversion factor for Alpha Tocopherol, most common form

Appendix 5: Rules For Classifying Ingredients

VITAMINS

An ingredient is classified as a vitamin if it is:

- A single vitamin listed by its name (eg vitamin A)
- A standard chemical form of the vitamin (retinol, retinal, retinoic acid) in synthetic or natural form

A vitamin will be classified as Other when it exists as:

- A precursor or provitamin to the active form of the vitamin (eg 7-dehydrocholesterol, a precursor to Vitamin D)
- A complex, since the ingredient content is unclear (eg B-complex)

The following appear in supplements as a source of vitamins and are therefore classified as a vitamin:

- Vitamin A: palmitate, vitamin A acetate, vitamin A palmitate
- Vitamin B-1/Thiamin: thiamin monophosphate or TMP, thiamin mononitrate, thiamin hydrochloride
- Vitamin B-2/Riboflavin: riboflavin mononitrate, riboflavin-5-phosphate sodium
- Vitamin B-3/Niacin
- Vitamin B-5/Pantothenic Acid: pantothenate, calcium pantothenate
- Vitamin B-6: pyridoxine hydrochloride, vitamin B_6 hydrochloride
- Vitamin B-12/Cobalamin: cyanocobalamin
- Vitamin C/Ascorbic Acid: ascorbyl palmitate, sodium ascorbate
- Vitamin D/Calciferol: cholecalciferol, ergocalciferol, calcitriol
- Vitamin E/Tocopherol: d-alpha tocopheryl acid succinate, dl-alpha tocopheryl acetate, d-alpha tocopheryl acetate, d-alpha tocopherol, d-alpha tocopheryl, tocopherols, mixed tocopherols, vitamin E acetate, tocotrienol
- Vitamin K/Menadione: phytonadione
- Biotin: Choline, choline bitartrate
- Folic Acid/Folate

MINERALS

An ingredient is classified as a mineral if it is a macro or micromineral (trace element):

- in its elemental form (eg iron)
- is the source of the mineral in a supplement (eg ferrous gluconate, potassium iodide, nickel chloride).

An ingredient containing a mineral is classified as Other when it is:

- an enzyme (eg boron protease)

- a complex, since the ingredient content is unclear (eg Trace Mineral Complex)
- used as an electrolyte (chloride, potassium, sodium)

The following are classified as minerals:

Arsenic	Copper	Phosphorus
Barium	Fluoride	Selenium
Boron	Iodine	Silicon
Bromine	Iron	Strontium
Cadmium	Magnesium	Sulfur
Calcium	Manganese	Tin
Chromium	Molybdenum	Vanadium
Cobalt	Nickel	Zinc

BOTANICALS

An ingredient is classified as a botanical if it is:

- part of a plant, tree, shrub, herb, etc.

Botanicals may include the following words:

- Extract, Powder
- Leaf, Root, Flower, Stem, Peel, Fruit
- Component of a botanical that specifically mentions it is from the plant (eg soy isoflavones, citrus bioflavonoids)

An ingredient containing a botanical is classified as Other if it is:

- listed only as an unspecified blend
- a chemical structure derived originally from a botanical (eg bromelain, the enzyme found in pineapple; Alliin, a phytochemical in garlic; apple cider vinegar)

AMINO ACIDS

An ingredient is classified as an amino acid if it is an essential or nonessential amino acid. It can exist in:

- it's free form (eg lycine, glutamine)
- its post-translational form with one or two added groups (e.g.Cystine, Hydroxylysine,Hydroxyproline, Dimethylglycine, and 3-methylhistidine)
- one of its isomeric forms (eg l-tyrosine)
- the source of an amino acid in a supplement (eg l-lysine monohydrochloride, glutamic acid hydrochloride)

An amino acid would be classified as Other if it is:

- in its post-translational form with three or more added groups (Trimethylglycine, Tetramethylglycine, etc.)
- an alpha-keto acid (an amino acid with its amino group, NH_3, replaced by a keto group) (eg "-ketoglutarate)
- a residue of an amino acid ((-carboxyglutamic acid also known as GLA)
- as a complex of amino acids (eg natural amino acid complex), since the ingredient content is unclear

The following are classified as amino acids:

Alanine	Glycine	Proline
Arginine	Histidine	Serine
Asparagine	Isoleucine	Taurine
Aspartic Acid	Leucine	Threonine
Cysteine	Lysine	Tryptophan
Glutamic Acid	Methionine	Tyrosine
Glutamine	Phenylalanine	Valine

OTHER

The following are examples of ingredients that would be classified as other:

- an electrolyte (eg chloride, potassium, sodium)
- a hormone (eg DHEA, cholesterol), unless if it is the active form of a vitamin (calcitriol)
- an enzyme (eg cellulase, glucoamylase)
- Complexes and blends (unless all components are of the same type ex. amino acid blend)
- Bioflavonoids and Isoflavones (if not associated with a plant, in which case it would be classified as a Botanical)
- Vinegars
- Phytochemicals (eg lutein, allin)
- Vitamin precursors, eg some carotenoids

Appendix 6: Data File Structure and Relationship

EXAMPLE OF DATA FILE INFORMATION AND RELATIONSHIPS:

File 1:

SEQN	DSD010	DSDCOUNT	DSD010AN	DSDANCNT
101 (Steve)	1 (Yes)	2	1 (Yes)	1
102 (Bob)	2 (No)	0	2 (No)	0
103 (Mary)	1 (Yes)	1	2 (No)	0

File 2:

SEQN	DSDSUPID	DSDSUPP	DSD070
101 (Steve)	1888340200	Calcium 600 mg + Vitamin D 200 IU	1 (Yes)
101 (Steve)	1000228800	Brand X Fat Reducer	1 (Yes)
101 (Steve)	1000042300	'TUMS REGULAR STRENGTH ANTACID / CALCIUM 200 MG	1 (Yes)
103 (Mary)	1888340200	Calcium 600 mg + Vitamin D 200 IU	2 (No)

File 3:

DSDSUPID	DSDSUPP	DSDCNTV	DSDCNTM	DSDCNTO
1888340200	Calcium 600 mg + Vitamin D 200 IU	1	1	0
1000228800	Brand X Fat Reducer	0	0	2
1000042300	'TUMS REGULAR STRENGTH ANTACID / CALCIUM 200 MG	0	1	2

File 4:

DSDSUPID	DSDSUPP	DSDINGID	DSDINGR	DSDQTY	DSDUNIT	DSDBLFLG
1888340200	Calcium 600 mg	10000070	Calcium	600.000	1 (mg)	2 (not a blend)

	+ Vitamin D 200 IU					
1888340200	Calcium 600 mg + Vitamin D 200 IU	10000385	Vitamin D	200.000	2 (IU)	2 (not a blend)
1000228800	Brand X Fat Reducer	10001227	Chitozyme	1200.000	1 (mg)	1 (blend)
1000042300	'TUMS REGULAR STRENGTH ANTACID / CALCIUM 200 MG	10000070	Calcium	400.00	1 (mg)	2 (not a blend)
1000042300	'TUMS REGULAR STRENGTH ANTACID / CALCIUM 200 MG	10000072	Calories	5.00	7 (Kcal)	2 (not a blend)
1000042300	'TUMS REGULAR STRENGTH ANTACID / CALCIUM 200 MG	10000428	Sugars	1	5 (gm)	2 (not a blend)

File 5:

DSDINGID	DSDINGR	DSDBCID	DSDBCNAM
10001227	Chitozyme	10000317	Psyllium Seed Husks
10001227	Chitozyme	10000642	Chitosan

Appendix 7: Instructions for Use

Instructions for using Dietary Supplements Questionnaire (DSQ) Component NHANES 2005-2006 Data Release

This appendix contains general instructions for downloading, extracting and formatting the NHANES 2005-2006 Dietary Supplements Questionnaire (DSQ) Component files (DSQ1_D, DSQ2_D, DSQ3_D, DSQ4_D, DSQ5_D). A format code file (DSQFMT_D is also included, which provides text descriptions for the format codes used in these files for several variables.

About the DSQ_D Format File

Dietary Supplement Questionnaire data for 2005-2006 contains a number of lengthy text fields including supplement names, ingredient names, blend component names and others. Many names are hundreds of characters in length and in many cases these text fields are repeated across multiple records. For example, a single dietary supplement having 20 ingredients will have 20 records in DSQ4_D (Ingredient File), and on each of these records that supplement's name must be repeated. Therefore, in order to reduce the size of these files certain text fields have been format coded, i.e., each text string has been replaced by a shorter coded value. The coded values are mapped to the full text strings in a SAS format library, which is provided with the datafiles. The source of the text descriptions used in this file is the NHANES Dietary Supplement Database. Please refer to the documentation for more detailed information about this database.

There are four variables included in the DSQFMT_D file:

1) FMTNAME: a text field encoding the name of the key variable (e.g., DSDSUPF) used to link with the format code in the DSQ_D Files;

2) START: the character or numeric value of the format code;

3) LABEL: the text description for the corresponding format code.

4) TYPE indicates character or numeric format type.

Downloading, Extracting and Formatting 2005-2006 DSQ_D Datasets

NHANES data in this release are in SAS transport file format, and in the DSQ_D datafiles, several data fields contain format-coded values. To use the DSQ_D data files, these steps must be performed:

1. Click on the "data" link for each file to download it to your PC. Click on the "formats" link to download the format file.

2. To access this data in any version of SAS, use the XPORT engine. It is recommended that you copy each of the transport files to a permanent SAS library. For example, assuming you have extracted the SAS transport file DSQ1_D.XPT to the folder C:\NHANES, use the following SAS code to copy the data file DSQ1_D to a SAS library DSQ_D (C:\NHANES\DSQ_D):

```
LIBNAME DSQ_DXP XPORT"C:\NHANES\DSQ1_D.XPT";
LIBNAME DSQ "C:\NHANES\DSQ_D";
PROC COPY IN= DSQ_DXP OUT= DSQ_D;
RUN;
```

3. SAS program code is provided below which will associate text strings with formatted values for all format coded variables in these datasets, assuming that all DSQ_D datasets (DSQ1_D, DSQ2_D, DSQ3_D, DSQ4_D, and DSQ5_D) and the format file (DSQFMT_D) are located in the SAS library DSQ:

```
LIBNAME DSQ "C:\NHANES\DSQ_D";
PROC FORMAT CNTLIN=DSQ_D.DSQFMT_D ;
PROC DATASETS LIB=DSQ_D;
MODIFY DSQ1_D;
FORMAT DSD010 DSD010F. ;
FORMAT DSDCOUNT DSDCNTF. ;
MODIFY DSQ2_D;
FORMAT DSDSUPP $DSDSUPF. ;
FORMAT DSD070 DSD070F. ;
FORMAT DSDMTCH DSDMTCHF. ;
FORMAT DSD100U DSD100UF. ;
FORMAT DSD120U DSD120UF. ;
FORMAT DSDANTA DSDANTAF. ;
MODIFY DSQ3_D;
FORMAT DSDSUPP $DSDSUPF. ;
FORMAT DSDSRCE DSDSRCEF. ;
FORMAT DSDTYPE DSDTYPEF. ;
FORMAT DSDSERVU DSDSRVF. ;
FORMAT DSDSERVA DSDASERF ;
MODIFY DSQ4_D;
FORMAT DSDSUPP $DSDSUPF. ;
FORMAT DSDINGR $DSDINGF. ;
FORMAT DSDUNIT DSDUNTF. ;
FORMAT DSDCAT DSDCATF. ;
FORMAT DSDBLFLG DSDBLF. ;
```

```
MODIFY DSQ5_D;
FORMAT DSDINGR $DSDINGF. ;
FORMAT DSDBCCAT DSDCATF. ;
FORMAT DSDBCNAM $BCNAMF. ;
        QUIT;
```

The use of multiple format statements allows the user to "unselect" any variable from the format process by commenting out its format statement. When a format statement is commented out with an asterisk:

```
*FORMAT DSDBLFLG $DSDBLF. ;
```

the variable it contains will display format codes instead of text strings. In the above example the variable DSDBLFLG will show values of only "1" and "2" instead of the text strings "Ingredient is a blend" and "Ingredient is not a blend". Format codes or full text strings can be shown in any combination by commenting/uncommenting and re-running the PROC DATASETS at any time.

To simply obtain a listing of formatted text labels for each formatted variable, data users can use the following SAS code:

```
OPTIONS LS=240;
LIBNAME DSQ "C:\NHANES\DSQ_D";
PROC PRINT DATA=DSQ_D.DSQFMT_D;
RUN;
```

Locator Record

Title: Dietary Supplement Use (DSQ_D)

Contact Number: 1-866-441-NCHS

Years of Content: 2005–2006

First Published: October 2008

Revised: NA

Access Constraints: None

Use Constraints: None

Geographic Coverage: National

Subject: Personal interview data on use of vitamins, minerals, herbals and other dietary supplements.

Record Source: NHANES 2005–2006

Survey Methodology: NHANES 2005–2006 is a stratified multistage probability sample of the civilian non-institutionalized population of the U.S.

Medium: NHANES Web site; SAS transport files