

# Package ‘nhanesA’

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**Title** NHANES Data Retrieval

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**BugReports** <https://github.com/cjendres1/nhanes/issues>

**Depends** R (>= 3.0.0)

**Imports** stringr, Hmisc (>= 3.17-1), rvest, magrittr, xml2, plyr

**Description** Utility to retrieve data from the National Health and Nutrition Examination Survey (NHANES) website <<https://www.cdc.gov/nchs/nhanes/index.htm>>.

**License** GPL (>= 2)

**URL** <https://cran.r-project.org/package=nhanesA>

**Suggests** knitr, rmarkdown

**VignetteBuilder** knitr

**RoxygenNote** 6.1.0

**NeedsCompilation** no

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## R topics documented:

|                        |   |
|------------------------|---|
| browseNHANES           | 2 |
| nhanes                 | 2 |
| nhanesAttr             | 3 |
| nhanesDXA              | 4 |
| nhanesSearch           | 5 |
| nhanesSearchTableNames | 6 |
| nhanesSearchVarName    | 7 |
| nhanesTables           | 7 |
| nhanesTableVars        | 8 |
| nhanesTranslate        | 9 |

**Index****11**


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|--------------|----------------------------------|
| browseNHANES | <i>Open a browser to NHANES.</i> |
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**Description**

The browser may be directed to a specific year, survey, or table.

**Usage**

```
browseNHANES(year = NULL, data_group = NULL, nh_table = NULL)
```

**Arguments**

|            |   |
|------------|---|
| year       | The year in yyyy format where 1999 <= yyyy <= 2016.   |
| data_group | The type of survey (DEMOGRAPHICS, DIETARY, EXAMINATION, LABORATORY, QUESTIONNAIRE). Abbreviated terms may also be used: (DEMO, DIET, EXAM, LAB, Q). |
| nh_table   | The name of an NHANES table.  |

**Details**

browseNHANES will open a web browser to the specified NHANES site.

**Examples**

```
browseNHANES()           # Defaults to the main data sets page
browseNHANES(2005)       # The main page for the specified survey year
browseNHANES(2009, 'EXAM') # Page for the specified year and survey group
browseNHANES(nh_table = 'VIX_D') # Page for a specific table
browseNHANES(nh_table = 'DXA')  # DXA main page
```

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|        |   |
|--------|---|
| nhanes | <i>Download an NHANES table and return as a data frame.</i> |
|--------|---|

---

**Description**

Use to download NHANES data tables that are in SAS format.

**Usage**

```
nhanes(nh_table)
```

**Arguments**

|          |   |
|----------|---|
| nh_table | The name of the specific table to retrieve. |
|----------|---|

**Details**

Downloads a table from the NHANES website in its entirety. NHANES tables are stored in SAS '.XPT' format. Function nhanes cannot be used to import limited access data.

**Value**

The table is returned as a data frame.

**Examples**

```
nhanes('BPX_E')
nhanes('FOLATE_F')
```

---

nhanesAttr

*Returns the attributes of an NHANES data table.*


---

**Description**

Returns attributes such as number of rows, columns, and memory size, but does not return the table itself.

**Usage**

```
nhanesAttr(nh_table)
```

**Arguments**

nh\_table      The name of the specific table to retrieve

**Details**

nhanesAttr allows one to check the size and other characteristics of a data table before importing into R. To retrieve these characteristics, the specified table is downloaded, characteristics are determined, then the table is deleted.

**Value**

The following attributes are returned as a list

- nrow = number of rows
- ncol = number of columns
- names = name of each column
- unique = true if all SEQN values are unique
- na = number of 'NA' cells in the table
- size = total size of table in bytes
- types = data types of each column

## Examples

```
nhanesAttr('BPX_E')
nhanesAttr('FOLATE_F')
```

---

nhanesDXA

*Import Dual Energy X-ray Absorptiometry (DXA) data.*

---

## Description

DXA data were acquired from 1999-2006.

## Usage

```
nhanesDXA(year, suppl = FALSE, destfile = NULL)
```

## Arguments

|          |   |
|----------|---|
| year     | The year of the data to import, where $1999 \leq \text{year} \leq 2006$ .   |
| suppl    | If TRUE then retrieve the supplemental data (default=FALSE).  |
| destfile | The name of a destination file. If NULL then the data are imported into the R environment but no file is created. |

## Details

Provide destfile in order to write the data to file. If destfile is not provided then the data will be imported into the R environment.

## Value

By default the table is returned as a data frame. When downloading to file, the return argument is the integer code from download.file where 0 means success and non-zero indicates failure to download.

## Examples

```
dxa_b <- nhanesDXA(2001)
dxa_c_s <- nhanesDXA(2003, suppl=TRUE)
nhanesDXA(1999, destfile="dxx.xpt")
```

---

|              |  |
|--------------|--|
| nhanesSearch | <i>Perform a search over the comprehensive NHANES variable list.</i> |
|--------------|--|

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### Description

The descriptions in the master variable list will be filtered by the provided search terms to retrieve a list of relevant variables. The search can be restricted to specific survey years by specifying ystart and/or ystop.

### Usage

```
nhanesSearch(search_terms = NULL, exclude_terms = NULL,
             data_group = NULL, ignore.case = FALSE, ystart = NULL,
             ystop = NULL, includerdc = FALSE, nchar = 100, namesonly = FALSE)
```

### Arguments

|               |  |
|---------------|--|
| search_terms  | List of terms or keywords.   |
| exclude_terms | List of exclusive terms or keywords.   |
| data_group    | Which data groups (e.g. DIET, EXAM, LAB) to search. Default is to search all groups. |
| ignore.case   | Ignore case if TRUE. (Default=FALSE).  |
| ystart        | Four digit year of first survey included in search, where ystart >= 1999.            |
| ystop         | Four digit year of final survey included in search, where ystop >= ystart.           |
| includerdc    | If TRUE then RDC only tables are included in list (default=FALSE).                   |
| nchar         | Truncates the variable description to a max length of nchar.                         |
| namesonly     | If TRUE then only the table names are returned (default=FALSE).                      |

### Details

nhanesSearch is useful to obtain a comprehensive list of relevant tables. Search terms will be matched against the variable descriptions in the NHANES Comprehensive Variable Lists. Matching variables must have at least one of the search\_terms and not have any exclude\_terms. The search may be restricted to specific surveys using ystart and ystop. If no arguments are given, then nhanesSearch returns the complete variable list.

### Value

A list of tables that match the search terms.

### Examples

```
nhanesSearch("bladder", ystart=2001, ystop=2008, nchar=50)
nhanesSearch("urin", exclude_terms="During", ystart=2009)
nhanesSearch(c("urine", "urinary"), ignore.case=TRUE, ystop=2006, namesonly=TRUE)
```

---

nhanesSearchTableNames

*Search for matching table names*

---

### **Description**

Returns a list of table names that match a specified pattern.

### **Usage**

```
nhanesSearchTableNames(pattern = NULL, ystart = NULL, ystop = NULL,  
  includerdc = FALSE, nchar = 100, details = FALSE)
```

### **Arguments**

|            |   |
|------------|---|
| pattern    | Pattern of table names to match   |
| ystart     | Four digit year of first survey included in search, where ystart >= 1999.                             |
| ystop      | Four digit year of final survey included in search, where ystop >= ystart.                            |
| includerdc | If TRUE then RDC only tables are included (default=FALSE).  |
| nchar      | Truncates the variable description to a max length of nchar.  |
| details    | If TRUE then complete table information from the comprehensive data list is returned (default=FALSE). |

### **Details**

Searches the Doc File field in the NHANES Comprehensive Data List (see <https://wwwn.cdc.gov/nchs/nhanes/search/DataPa>) for tables that match a given name pattern. Only a single pattern may be entered.

### **Value**

A list of table names that match the pattern.

### **Examples**

```
nhanesSearchTableNames('BMX')  
nhanesSearchTableNames('HPVS', includerdc=TRUE, details=TRUE)
```

---

nhanesSearchVarName     *Search for tables that contain a specified variable.*

---

**Description**

Returns a list of table names that contain the variable

**Usage**

```
nhanesSearchVarName(varname = NULL, ystart = NULL, ystop = NULL,  
  includerdc = FALSE, nchar = 100, namesonly = TRUE)
```

**Arguments**

|            |  |
|------------|--|
| varname    | Name of variable to match.   |
| ystart     | Four digit year of first survey included in search, where ystart >= 1999.  |
| ystop      | Four digit year of final survey included in search, where ystop >= ystart. |
| includerdc | If TRUE then RDC only tables are included in list (default=FALSE).         |
| nchar      | Truncates the variable description to a max length of nchar.               |
| namesonly  | If TRUE then only the table names are returned (default=TRUE).             |

**Details**

The NHANES Comprehensive Variable List is scanned to find all data tables that contain the given variable name. Only a single variable name may be entered, and only exact matches will be found.

**Examples**

```
nhanesSearchVarName('BMXLEG')  
nhanesSearchVarName('BMXHEAD', ystart=2003)
```

---

nhanesTables     *Returns a list of table names for the specified survey group.*

---

**Description**

Enables quick display of all available tables in the survey group.

**Usage**

```
nhanesTables(data_group, year, nchar = 100, details = FALSE,  
  namesonly = FALSE, includerdc = FALSE)
```

**Arguments**

|            |   |
|------------|---|
| data_group | The type of survey (DEMOGRAPHICS, DIETARY, EXAMINATION, LABORATORY, QUESTIONNAIRE). Abbreviated terms may also be used: (DEMO, DIET, EXAM, LAB, Q). |
| year       | The year in yyyy format where 1999 <= yyyy <= 2014.   |
| nchar      | Truncates the table description to a max length of nchar.   |
| details    | If TRUE then a more detailed description of the tables is returned (default=FALSE).   |
| namesonly  | If TRUE then only the table names are returned (default=FALSE).   |
| includerdc | If TRUE then RDC only tables are included in list (default=FALSE).  |

**Details**

Data are retrieved via web scraping using html wrappers from package rvest. It is often useful to display the table names in an NHANES survey. In effect this is a convenient way to browse the available NHANES tables.

**Value**

The names of the tables in the specified survey group.

**Examples**

```
nhanesTables('EXAM', 2007)
nhanesTables('LAB', 2009, details=TRUE, includerdc=TRUE)
nhanesTables('Q', 2005, namesonly=TRUE)
```

---

|                 |  |
|-----------------|--|
| nhanesTableVars | <i>Displays a list of variables in the specified NHANES table.</i> |
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**Description**

Enables quick display of table variables and their definitions.

**Usage**

```
nhanesTableVars(data_group, nh_table, details = FALSE, nchar = 100,
  namesonly = FALSE)
```

**Arguments**

|            |   |
|------------|---|
| data_group | The type of survey (DEMOGRAPHICS, DIETARY, EXAMINATION, LABORATORY, QUESTIONNAIRE). Abbreviated terms may also be used: (DEMO, DIET, EXAM, LAB, Q). |
| nh_table   | The name of the specific table to retrieve.   |
| details    | If TRUE then all columns in the variable description are returned (default=FALSE).  |



|           |  |
|-----------|--|
| nchar     | The number of characters in the Variable Description to print. Values are limited to $0 \leq \text{nchar} \leq 128$ . This is used to enhance readability, cause variable descriptions can be very long. |
| namesonly | If TRUE then only the variable names are returned (default=FALSE).   |

### Details

Data are retrieved via web scraping using html wrappers from package rvest. Each data table contains multiple, sometimes more than 100, fields. It is helpful to list the field descriptions to ascertain quickly if a data table is of interest.

### Value

The names of the tables in the specified survey group

### Examples

```
nhanesTableVars('LAB', 'CBC_E')
nhanesTableVars('EXAM', 'OHX_E', details=TRUE, nchar=50)
nhanesTableVars('DEMO', 'DEMO_F', namesonly = TRUE)
```

---

|                 |  |
|-----------------|--|
| nhanesTranslate | <i>Display code translation information for the specified table.</i> |
|-----------------|--|

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### Description

Returns code translations which is especially useful for categorical tables, which includes most NHANES tables.

### Usage

```
nhanesTranslate(nh_table, colnames = NULL, data = NULL, nchar = 32,
  mincategories = 2, details = FALSE, dxa = FALSE)
```

### Arguments

|               |   |
|---------------|---|
| nh_table      | The name of the NHANES table to retrieve.   |
| colnames      | The names of the columns to translate.  |
| data          | If a data frame is passed, then code translation will be applied directly to the data frame.<br>In that case the return argument is the code-translated data frame. |
| nchar         | Applies only when data is defined. Code translations can be very long. Truncate the length by setting nchar (default = 32).   |
| mincategories | The minimum number of categories needed for code translations to be applied to the data (default=2).  |
| details       | If TRUE then all available table translation information is displayed (default=FALSE).  |
| dxa           | If TRUE then the 2005-2006 DXA translation table will be used (default=FALSE).  |

**Details**

Code translation tables are retrieved via webscraping using rvest. Many of the NHANES data tables have encoded values. E.g. 1 = 'Male', 2 = 'Female'. Thus it is often helpful to view the code translations and perhaps insert the translated values in a data frame. Note that Hmisc supports "labelled" fields. When a translation is applied directly to a column in a data frame, the column class is first converted to 'factor' and then the coded values are replaced with the code translations.

**Value**

The code translation table (or translated data frame when data is defined).

**Examples**

```
nhanesTranslate('DEMO_B', c('DMDBORN', 'DMDCITZN'))  
nhanesTranslate('BPX_F', 'BPACSZ', details=TRUE)  
nhanesTranslate('BPX_F', 'BPACSZ', data=nhanes('BPX_F'))
```

# Index

[browseNHANES](#), [2](#)

[nhanes](#), [2](#)

[nhanesAttr](#), [3](#)

[nhanesDXA](#), [4](#)

[nhanesSearch](#), [5](#)

[nhanesSearchTableNames](#), [6](#)

[nhanesSearchVarName](#), [7](#)

[nhanesTables](#), [7](#)

[nhanesTableVars](#), [8](#)

[nhanesTranslate](#), [9](#)