

# Package ‘nhanesA’

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**Title** NHANES Data Retrieval

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

**Depends** R (>= 3.0.0)

**Imports** stringr, foreign, 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)

**Encoding** UTF-8

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

**Suggests** knitr, rmarkdown

**VignetteBuilder** knitr

**RoxygenNote** 7.2.0

**NeedsCompilation** no

**Author** Christopher Endres [aut, cre]

**Maintainer** Christopher Endres <[cjendres1@gmail.com](mailto:cjendres1@gmail.com)>

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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.   |
| 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.

## Value

No return value

## 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
```

---

|        |   |
|--------|---|
| 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 as is, i.e. in its entirety with no modification or cleansing. NHANES tables are stored in SAS '.XPT' format but are imported as a data frame. 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 | <i>Returns the attributes of an NHANES data table.</i> |
|------------|--|

---

**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<=year<=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

---

*Perform a search over the comprehensive NHANES variable list.*


---

**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**

Returns a data frame that describes variables that matched the search terms. If namesonly=TRUE, then a character vector of table names that contain matched variables is returned.

**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/DataPag>) for tables that match a given name pattern. Only a single pattern may be entered.

**Value**

Returns a character vector of table names that match the given pattern. If details=TRUE, then a data frame of table attributes is returned. NULL is returned when an HTML read error is encountered.

**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.

**Value**

By default, a character vector of table names that include the specified variable is returned. If `namesonly=FALSE`, then a data frame of table attributes is returned.

**Examples**

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

---

|                           |  |
|---------------------------|--|
| <code>nhanesTables</code> | <i>Returns a list of table names for the specified survey group.</i> |
|---------------------------|--|

---

**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**

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

**Details**

Function `nhanesTables` retrieves a list of tables and a description of their contents from the NHANES website. This provides a convenient way to browse the available tables. NULL is returned when an HTML read error is encountered.



**Value**

Returns a data frame that contains table attributes. If `namesonly=TRUE`, then a character vector of table names is returned.

**Examples**

```
nhanesTables('EXAM', 2007)
nhanesTables('LAB', 2009, details=TRUE, includercdc=TRUE)
nhanesTables('Q', 2005, namesonly=TRUE)
nhanesTables('DIET', 'P')
nhanesTables('EXAM', 'Y')
```

---

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

---

**Description**

Enables quick display of table variables and their definitions.

**Usage**

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

**Arguments**

|                         |   |
|-------------------------|---|
| <code>data_group</code> | The type of survey (DEMOGRAPHICS, DIETARY, EXAMINATION, LABORATORY, QUESTIONNAIRE). Abbreviated terms may also be used: (DEMO, DIET, EXAM, LAB, Q).   |
| <code>nh_table</code>   | The name of the specific table to retrieve.   |
| <code>details</code>    | If TRUE then all columns in the variable description are returned (default=FALSE).  |
| <code>nchar</code>      | The number of characters in the Variable Description to print. Values are limited to $0 \leq nchar \leq 128$ . This is used to enhance readability, cause variable descriptions can be very long. |
| <code>namesonly</code>  | If TRUE then only the variable names are returned (default=FALSE).  |

**Details**

NHANES tables may contain more than 100 variables. Function `nhanesTableVars` provides a concise display of variables for a specified table, which helps to ascertain quickly if the table is of interest. NULL is returned when an HTML read error is encountered.

**Value**

Returns a data frame that describes variable attributes for the specified table. If `namesonly=TRUE`, then a character vector of the variable names is returned.

**Examples**

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

---

nhanesTranslate      *Display code translation information.*

---

**Description**

Returns code translations for categorical variables, which appear in most NHANES tables.

**Usage**

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

**Arguments**

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

**Details**

Most 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. Only a single table may be specified, but multiple variables within that table can be selected. Code translations are retrieved for each variable.

**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'))
```

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