

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)

Encoding UTF-8

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

Suggests knitr, rmarkdown

VignetteBuilder knitr

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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
```

nhanes	<i>Download an NHANES table and return as a data frame.</i>
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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	<i>Returns the attributes of an NHANES data table.</i>
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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

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/DataPag>) 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	<i>Search for tables that contain a specified variable.</i>
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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	<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

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>
-----------------	--

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<=nchar<=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 *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

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. 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'))
```

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