Package 'MedDietCalc'

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Type Package

Title Multi Calculator to Compute Scores of Adherence to Mediterranean Diet

Version 0.1.1

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Description Multi Calculator of different scores to measure adherence to Mediterranean Diet, to compute them in nutriepidemiological data. Additionally, a sample dataset of this kind of data is provided, and some other minor tools useful in epidemiological studies.

License GPL-3

Encoding UTF-8

LazyData true

Imports stats

Suggests graphics, knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

Repository CRAN

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Contents

`computeCardio` *computeCardio*

Description

Computes Cardioprotective Mediterranean Diet Index

Usage

```
computeCardio(data = NULL, Vegetables, Fruit, OliveOil, OOmeasure = "gr",
              Legumes, Fish, Meat, RefinedRice, RefinedBread, WholeBread, Wine,
              frequency = "percent", output = "percent", rm.na = FALSE)
```

Arguments

`data`	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns.
`Vegetables`	Numeric variable with vegetables consumption as servings.
`Fruit`	Numeric variable with fruit consumption as servings.
`OliveOil`	Numeric variable with olive oil consumption, measure is set with the 'OOmeasure' argument.
`OOmeasure`	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (15 ml).
`Legumes`	Numeric variable with legumes consumption as servings.
`Fish`	Numeric variable with fish consumption as servings.
`Meat`	Numeric variable with meat and meat products consumption as servings.
`RefinedRice`	Numeric variable with consumption of refined rice as servings.
`RefinedBread`	Numeric variable with consumption of refined bread as servings.
`WholeBread`	Numeric variable with consumption of whole bread as servings.
`Wine`	Numeric variable with wine consumption as glasses.

`frequency` A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

`output` A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).

`rm.na` Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

In the score, the item about refined and whole cereals is scored positively if consumption of both white bread and rice is low or when consumption of whole-grain bread is high. Rice and whole-grain bread are considered weekly, and white bread daily: [White bread (< 1 serving/day) AND rice (< 1 serving/week)] OR whole-grain bread (> 5 servings/week). The function takes as arguments the three foods, with whatever periodicity they have been recorded in the data, as long as it is provided with the 'frequency' argument. Internally function sets them in the suitable fashion to test this score item.

There is an aditional item in the score, computed internally, that provides one point if both vegetables and fruit consumption have received 1 point each one.

Value

Computed Cardio score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 9 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Martinez-Gonzalez, M. A., E. Fernandez-Jarne, M. Serrano-Martinez, M. Wright, and E. Gomez-Gracia. 2004. 'Development of a Short Dietary Intake Questionnaire for the Quantitative Estimation

of Adherence to a Cardioprotective Mediterranean Diet'. European Journal of Clinical Nutrition 58 (11): 1550-52. doi:10.1038/sj.ejcn.1602004.

Examples

```
data(nutriSample)

MedDiet <- computeCardio(data = nutriSample,
                         OliveOil = Aceitegr,
                         OOmeasure = "gr",
                         Fruit = P50rac + P52rac,
                         Vegetables = P41rac + P42rac,
                         Legumes = P46rac,
                         Fish = P35rac + P36rac + P37rac + P38rac,
                         Wine = P96rac,
                         Meat = P29rac + P30rac + P31rac + P32rac,
                         RefinedBread = P55rac,
                         RefinedRice = P61rac,
                         WholeBread = P56rac,
                         frequency = "daily", output = "percent", rm.na = FALSE)
hist(MedDiet)
```

`computeFRESCO` *computeFRESCO*

Description

Computes 10-year risk of fatal or non-fatal stroke and Coronary Heart Disease according to FRESCO score ('Función de Riesgo ESpañola de acontecimientos Coronarios y Otros', 'Spanish risk function of coronary and other cardiovascular events').

Usage

```
computeFRESCO(data, outcome = c("Coronary", "Stroke", "All"), simplified = FALSE,
              Sex, Age, Smoker, BMI,
              Diabetes, SBP, TotChol, HDL, HBPpill,
              men = "male", women = "female")
```

Arguments

`data`	list or data.frame which contains the variables
`outcome`	character string indicating for which outcome risk is to be computed. Allowed values are "Coronary", "Stroke" or "All", which means the output is the risk of a coronary event, stroke, or both
`simplified`	logical. Original FRESCO score was derived in two versions: the full one, which includes all the following variables; and the other is de simplified one, which uses just sex, age, smoking status and body mass index. If TRUE, the simplified version will be computed.

Sex	variable containing gender of the people. It can be character, factor or numeric, as far as the 'men' and 'women' arguments specify how the formula should handle this variable (See below)
Age	numeric with people age in years
Smoker	numeric variable containg smoking status. 0 = non smoker, 1 = currently smoker
BMI	numeric variable with Body Mass Index (weight[kilograms] / height²[meters])
Diabetes	numeric which informs wether the person is diabetic. 0 = no, 1 = yes.
SBP	numeric variable with Systolic Blood Pressure in mmHg
TotChol	numeric with total serum cholesterol in mg/dl
HDL	numeric with serum High Density Lipoprotein cholesterol in mg/dl
HBPpill	numeric which means if the person is currently under treatment because of High Blood Pressure. 0 = no, 1 = yes.
men	character with informs of how males have been recorded in the 'Sex' argument, default is 'male'. If 'Sex' is numeric, a quoted number should be provided (for instance, men = '1'
women	character. Same meaning as 'men' argument, but for females.

Details

In Spanish population, Framingham-REGICOR function tends to overestimate cardio and cerebrovascular risk. So, FRESCO score was developed among people from 35 to 79 years, which includes a simplified version with no laboratory results, and another one a bit harder to compute with slightly improved prediction ability.

Value

Numeric vector of same length as rows in 'data' with estimated percentage of 10-year risk of fatal or non-fatal event (Coronary Heart Diesease, or stroke or both depending on 'outcome' argument).

Author(s)

Miguel Menendez

References

Marrugat, Jaume, Isaac Subierana, Rafael Ramos, Joan Vila, Alejandro Marin-Ibanez, Maria Jesus Guembe, Fernando Rigo, et al. 2014. "Derivation and Validation of a Set of 10-Year Cardiovascular Risk Predictive Functions in Spain: The FRESCO Study." Preventive Medicine 61 (April): 66-74. doi:10.1016/j.ypmed.2013.12.031.

Examples

```
myself <- list(sex = "male", age = 32, tobacco = 0, bmi = 21.5)
computeFRESCO(data = myself, outcome = "All", simplified = TRUE,
              Sex = sex, Age = age, Smoker = tobacco, BMI = bmi)
```

computeGoulet *computeGoulet*

Description

Computes Mediterranean Diet adherence score according to Goulet et al. in 2003.

Usage

```
computeGoulet(data, WholeCereals, Vegetables, Fruit, LegumesAndNuts, OliveOil,
              OOmeasure = "gr", Olives, Dairy, Fish, Poultry, Eggs, Sweets, Meat,
               output = "percent", frequency = "daily", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns.
WholeCereals	Numeric variable with consumption of whole grain products as servings.
Vegetables	Numeric variable with vegetables consumption as servings.
Fruit	Numeric variable with fruit consumption as servings.
LegumesAndNuts	Numeric variable with legumes, nuts and seed consumption as servings.
OliveOil	Numeric variable with olive oil consumption, measure is set with the 'OOmeasure' argument.
OOmeasure	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (15 ml).
Olives	Numeric variable with olives consumption as servings.
Dairy	Numeric variable with dairy consumption as servings.
Fish	Numeric variable with fish consumption as servings.
Poultry	Numeric variable with poultry (other than breaded) consumption as servings.
Eggs	Numeric variable with eggs consumption as servings.
Sweets	Numeric variable with sweets consumption as servings.
Meat	Numeric variable with red meat and meat products consumption as servings.
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

Computes Mediterranean Diet adherence score according to Goulet et al. in 2003. It can be found as Mediterranean Score (MS) [Mila-Villarroel et al., 2011].

Value

Computed Mediterranean Diet Adherence score according to Goulet et al. 2003. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 44 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Goulet, Julie, Benoıt Lamarche, Genevieve Nadeau, and Simone Lemieux. 2003. 'Effect of a Nutritional Intervention Promoting the Mediterranean Food Pattern on Plasma Lipids, Lipoproteins and Body Weight in Healthy French-Canadian Women'. Atherosclerosis 170 (1): 115-24. doi:10.1016/S0021-9150(03)00243-0.

Mila-Villarroel, Raimon, Anna Bach-Faig, Josep Puig, Anna Puchal, Andreu Farran, Lluis Serra-Majem, and Josep Lluis Carrasco. 2011. 'Comparison and Evaluation of the Reliability of Indexes of Adherence to the Mediterranean Diet'. Public Health Nutrition 14 (12A): 2338-45. doi:10.1017/S1368980011002606.

Examples

```
data(nutriSample)
MedDiet <- computeGoulet(data = nutriSample,
  WholeCereals = P56rac + ifelse(nutriSample$P63_2 == 2, nutriSample$P61rac, 0),
  Vegetables = P41rac + P42rac,
  Fruit = P50rac + P52rac,
  LegumesAndNuts = P46rac + P53rac + P75rac,
  OliveOil = Aceitegr,
  OOmeasure = "gr",
  Olives = P54rac,
  Dairy = P19rac + P20rac + P20rac + P22rac + P23rac + P24rac + P25rac + P26rac + P27rac,
  Fish = P35rac + P36rac + P37rac + P38rac,
```

```
  Poultry = P33rac,
  Eggs = P28rac,
  Sweets = P69rac + P70rac + P71rac + P72rac + P73rac,
  Meat = P29rac + P30rac + P31rac + P32rac,
  output = "percent", frequency = "daily", rm.na = FALSE)
hist(MedDiet)
```

---

computeMAI99 *computeMAI99*

Description

Computes Mediterranean Adequacy Index according to Alberti-Fidanza et al. 1999.

Usage

```
computeMAI99(data, Bread, Cereals, Legumes, Potatoes,
           Vegetables, FruitAndNuts, Fish, Wine, Oil,
           Milk, Cheese, Meat, Eggs, AnimalFats, SoftDrinks, Pastries, Sugar,
           Kcal, output = NULL, rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns.
Bread	Numeric with energy (as Kilocalories) attributable to bread. The argument is the energy measured as Kcal, although the function will score it as percentage of energy respect total energy intake (see Details).
Cereals	Numeric with energy (as Kilocalories) attributable to cereals.
Legumes	Numeric with energy (as Kilocalories) attributable to legumes.
Potatoes	Numeric with energy (as Kilocalories) attributable to potatoes.
Vegetables	Numeric with energy (as Kilocalories) attributable to vegetables.
FruitAndNuts	Numeric with energy (as Kilocalories) attributable to FruitAndNuts.
Fish	Numeric with energy (as Kilocalories) attributable to fish.
Wine	Numeric with energy (as Kilocalories) attributable to wine.
Oil	Numeric with energy (as Kilocalories) attributable to vegetal oils.
Milk	Numeric with energy (as Kilocalories) attributable to milk.
Cheese	Numeric with energy (as Kilocalories) attributable to cheese.
Meat	Numeric with energy (as Kilocalories) attributable to meat.
Eggs	Numeric with energy (as Kilocalories) attributable to eggs.
AnimalFats	Numeric with energy (as Kilocalories) attributable to fats of animal origin.
SoftDrinks	Numeric with energy (as Kilocalories) attributable to soft drinks.
Pastries	Numeric with energy (as Kilocalories) attributable to pastries.

Sugar	Numeric with energy (as Kilocalories) attributable to sugar.
Kcal	Numeric with total energy intake measured as Kcal.
output	A character string to set which output should the formula give, allowed values are 'data.frame' and 'index'.
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

The index components are scored as percent of calories. But to make it easier to the user, arguments should provide the energy each food item provides. Also the total energy intake should be provided, so formula can internally relate them.

Mediterranean Adequacy Index is a ratio of Kcal attributable to healthy foods over Kcal attributable to unhealthy foods, so values could range from 0 to more than 100 (Alberti et al. 2009). The reference italian-mediterranean diet is 7.5 (Alberti-Fidanza et al. 1999). So, value is not a percentage, and comparability with other scores is not direct.

Periodicity argument is not provided, as the equation is a ratio and it is not to vary if food is recorded daily, weekly or monthly.

Value

Computed Mediterranean Adequacy Index. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'index'`
: Instead of the full data.frame, just the numeric vector corresponding to the absolute points of adherence to Mediterranean Diet for each person. Range can vary widely (see Details).

Author(s)

Miguel Menendez

References

Alberti-Fidanza, A., F. Fidanza, M. P. Chiuchiù, G. Verducci, and D. Fruttini. 1999. "Dietary Studies on Two Rural Italian Population Groups of the Seven Countries Study. 3. Trend Of Food and Nutrient Intake from 1960 to 1991." European Journal of Clinical Nutrition 53 (11): 854–60.

Alberti, Adalberta, Daniela Fruttini, and Flaminio Fidanza. 2009. "The Mediterranean Adequacy Index: Further Confirming Results of Validity." Nutrition, Metabolism and Cardiovascular Diseases 19 (1): 61–66. doi:10.1016/j.numecd.2007.11.008.

Examples

```
data(nutriSample)

MedDiet <- computeMAI99(data = nutriSample,
  Bread = P55Kcal + P56Kcal + P57Kcal,
  Cereals = P55Kcal + P56Kcal + P57Kcal + P59Kcal + P60Kcal + P61Kcal + P62Kcal,
  Legumes = P46Kcal,
  Potatoes = P43Kcal + P44Kcal + P45Kcal,
  Vegetables = P41Kcal + P42Kcal,
  FruitAndNuts = P50Kcal + P53Kcal,
  Fish = P35Kcal + P36Kcal + P37Kcal + P38Kcal,
  Wine = P96Kcal,
  Oil = AceiteKcal,
  Milk = P19Kcal + P20Kcal + P21Kcal,
  Cheese = P26Kcal + P27Kcal,
  Meat = P29Kcal + P30Kcal + P31Kcal + P32Kcal,
  Eggs = P28Kcal,
 AnimalFats = P29grGrasa + P30grGrasa + P31grGrasa + P32grGrasa + P33grGrasa + P34grGrasa ,
  SoftDrinks = P89Kcal + P90Kcal,
  Pastries = P69Kcal + P70Kcal + P71Kcal + P72Kcal + P73Kcal,
  Sugar = P84Kcal,
  Kcal = totalKcal,
  output = "index", rm.na = FALSE)
hist(MedDiet)
```

`computeMDP02` *computeMDP02*

Description

Computes Mediterranean Diet adherence score known as Mediterranean Dietary Pattern, by Martinez-Gonzalez et al. 2002.

Usage

```
computeMDP02(data, OliveOil, OOmeasure = "gr", Fiber, Fruit, Vegetables, Fish,
             Alcohol, Meat, RefinedCereals,
             output = "percent", rm.na = FALSE, frequency = "daily")
```

Arguments

`data`	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
`OliveOil`	Numeric variable with olive oil consumption, measure is set with the 'OOmeasure' argument
`OOmeasure`	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (15 ml).

`Fiber`	Numeric variable with consumption of Dietary Fiber as grams.
`Fruit`	Numeric variable with consumption of Fruits as grams.
`Vegetables`	Numeric variable with Vegetables consumption as grams
`Fish`	Numeric variable with Fish consumption as grams
`Alcohol`	Numeric variable with Alcohol consumption as etanol grams from any beberage origin
`Meat`	Numeric variable with Meat and Meat Products consumption as grams
`RefinedCereals`	Numeric variable with Refined Cereals consumption as grams
`output`	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
`rm.na`	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)
`frequency`	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

Value

Computed MDP02 score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 5 (min.) to 40 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Martinez-Gonzalez, Miguel A., Elena Fernandez-Jarne, Manuel Serrano-Martinez, Amelia Marti, J. Alfredo Martinez, and Jose M. Martin-Moreno. 2002. 'Mediterranean Diet and Reduction in the Risk of a First Acute Myocardial Infarction: An Operational Healthy Dietary Score'. European Journal of Nutrition 41 (4): 153-60. doi:10.1007/s00394-002-0370-6.

Examples

```
data(nutriSample)

MedDiet <- computeMDP02(data = nutriSample,
                        OliveOil = Aceitegr,
                        OOmeasure = "gr",
                        Fiber = totalFibra,
                        Fruit = P50grCom,
                        Vegetables = P41grCom + P42grCom,
                        Fish = P35grCom + P36grCom + P37grCom + P38grCom,
                        Alcohol = 12 * (P94rac + P96rac + P97rac + P98rac + P99rac),
                        Meat = P29grCom + P30grCom + P31grCom + P32grCom,
                        RefinedCereals = P55grCom + P61grCom,
                        output = "percent", rm.na = FALSE, frequency = "daily")
hist(MedDiet)
```

---

computeMDQI *computeMDQI*

Description

Computes Mediterranean Diet Quality Index.

Usage

```
computeMDQI(data, FruitAndVegetables, OliveOil, OOmeasure = "gr", Fish, Cereals,
            Meat, SatFats, Cholesterol,
            Kcal = NULL, invert = TRUE,
            frequency = NULL, output = "percent", rm.na = FALSE)
```

Arguments

`data`	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
`FruitAndVegetables`	Numeric variable with consumption of fruit and vegetables as grams
`OliveOil`	Numeric variable with olive oil consumption, measure is set with the 'OOmeasure' argument
`OOmeasure`	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (15 ml).
`Fish`	Numeric variable with fish consumption as grams
`Cereals`	Numeric variable with cereals consumption as grams
`Meat`	Numeric variable with Meat consumption as grams

`SatFats` Numeric variable with energy contribution of saturated fats to diet. The formula will score it as percent of total energy intake, but it can be provided in one of two ways (see Details)

`Cholesterol` Numeric variable with cholesterol consumption as miligrams

`Kcal` Optional numeric variable with total energy intake as kilocalories. If provided, it makes a modification in 'SatFats' argument (see Details)

`invert` Logical. If set to TRUE (default), the score is inverted, if set to FALSE, the score is kept as in the original (see Details)

`frequency` A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

`output` A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).

`rm.na` Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

This score is a mediterranean adaptation [Scali et al., 2000; Gerber 2006] from a previous Diet Quality Index (DQI) by Patterson et al. [Patterson et al., 1994], thus it was named MDQI (Mediterraean DQI).

In this score, originally, higher puntuations mean LOWER adherence. As this is not the usual in mediterranean diet scores, the argument 'invert' can make it reverse. If invert = TRUE (default), higher puntuations mean higher adherence.

Saturated fats (SFA) are scored as percent of total energy that is provided by SFA. This information can be provided in one of two ways: 1) 'SatFats' argument can be directly the percent of total energy intake provided by SFA, if so, the 'Kcal' argument must be missing or NULL. 2) 'SatFats' argument can be the amount of kilocalories provided by SFA, if so, the 'Kcal' argument must be provided, for formula to know the required percentage.

Cholesterol should be provided as miligrams. If mean consumption of cholesterol is lower than 1, a warning will be produce to ask user to check units.

Value

Computed MDQI score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, ranging from 0

to 14. Depending on 'invert' argument higher puntuations can mean higher or lower adherence (see Details)

`if output = 'percent'`

Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person. Depending on 'invert' argument higher puntuations can mean higher or lower adherence (see Details)

Author(s)

Miguel Menendez

References

Patterson, R. E., P. S. Haines, and B. M. Popkin. 1994. 'Diet Quality Index: Capturing a Multidimensional Behavior'. Journal of the American Dietetic Association 94 (1): 57-64.

Scali, Jacqueline, Aurelia Richard, and Mariette Gerber. 2001. 'Diet Profiles in a Population Sample from Mediterranean Southern France'. Public Health Nutrition 4 (02): 173-182. doi:10.1079/PHN200065.

Gerber, Mariette. 2006. 'Qualitative Methods to Evaluate Mediterranean Diet in Adults'. Public Health Nutrition 9 (1A): 147-51.

Examples

```
data(nutriSample)

# If Saturated Fats are provided as the energy they provide,
# and Kcal arguments informs about total energy intake:
MedDiet <- computeMDQI(data = nutriSample,
                       FruitAndVegetables = P50grCom + P52grCom + P41grCom + P42grCom,
                       OliveOil = Aceitegr,
                       OOmeasure = "gr",
                       Fish = P35grCom + P36grCom + P37grCom + P38grCom,
                       Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                                 P60grCom + P61grCom + P62grCom,
                       Meat = P29grCom + P30grCom + P31grCom + P32grCom,
                       SatFats = totalGrasaSat,
                       Cholesterol = totalCol,
                       Kcal = totalKcal,
                       invert = TRUE,
                       frequency = "daily", output = "percent", rm.na = FALSE)


# If Saturated Fats are provided as the percent of energy they provide, so Kcal is not provided:
nutriSample$MySFApercent <- 100 * nutriSample$totalGrasaSat / nutriSample$totalKcal

MedDiet2 <- computeMDQI(data = nutriSample,
                       FruitAndVegetables = P50grCom + P52grCom + P41grCom + P42grCom,
                       OliveOil = Aceitegr,
                       OOmeasure = "gr",
                       Fish = P35grCom + P36grCom + P37grCom + P38grCom,
                       Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                                 P60grCom + P61grCom + P62grCom,
```

```
                        Meat = P29grCom + P30grCom + P31grCom + P32grCom,
                        SatFats = MySFApercent,
                        Cholesterol = totalCol,
                        # don't provide Kcal
                        invert = TRUE,
                        frequency = "daily", output = "percent", rm.na = FALSE)

hist(MedDiet2)
```

---

computeMDS03 *computeMDS03*

Description

Mediterranean Adherence score index, as modified in 2003, whith the addition of fish item.

Usage

```
computeMDS03(data, Vegetables, Legumes, FruitAndNuts, Cereals, Potatoes = NULL, Fish,
            Meat, Dairy, Alcohol, Fats = NULL, MUFA = NULL, SFA = NULL,
            Sex, men = "male", women = "female",
            frequency = "daily", output = "percent", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
Vegetables	Numeric variable with Vegetables consumption as grams
Legumes	Numeric variable with Legumes consumption as grams
FruitAndNuts	Numeric variable with consumption of Fruits and Nuts as grams
Cereals	Numeric variable with Cereals consumption as grams
Potatoes	Numeric variable with Potatoes consumption as grams
Fish	Numeric variable with Fish consumption as grams
Meat	Numeric variable with Meat consumption as grams
Dairy	Numeric variable with Dairy consumption as grams
Alcohol	Numeric variable with Alcohol consumption as etanol grams from any beberage origin
Fats	Optional. Numeric variable with a ratio of consumption of Mono Unsaturated Fatty Acids (MUFA) over Saturated Fatty Acids (SFA). If it is not provided, then individual MUFA and SFA should be provided
MUFA	Optional if Fats is provided. Numeric variable with consumption of Mono Unsaturated Fatty Acids, units should be the same as used with PUFA and SFA
SFA	Optional if Fats is provided. Numeric variable with consumption of Saturated Fatty Acids

`Sex` Vector with gender, it can be numeric, factor or character, as long as its values are provided by 'men' and 'women' arguments. If 'Sex' argument is character or factor, and values for male are either 'man', 'male', 'MAN' or 'MALE', and for females are 'woman', 'female', 'WOMAN' or 'FEMALE', then, the arguments 'men' and 'women' can be missing

`men` A character string with the value of male gender, default is "male"

`women` A character string with the value of female gender, default is "female"

`frequency` A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

`output` A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).

`rm.na` Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

This score is an update of the landmark first Mediterranean Diet Score (MDS), published in 1995, but including fish consumption.

Value

Computed MDS03 score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 9 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Trichopoulou, A., A. Kouris-Blazos, M. L. Wahlqvist, C. Gnardellis, P. Lagiou, E. Polychronopoulos, T. Vassilakou, L. Lipworth, and D. Trichopoulos. 1995. "Diet and Overall Survival in Elderly People." BMJ (Clinical Research Ed.) 311 (7018): 1457–60.

Trichopoulou, Antonia, Tina Costacou, Christina Bamia, and Dimitrios Trichopoulos. 2003. "Adherence to a Mediterranean Diet and Survival in a Greek Population." New England Journal of Medicine 348 (26): 2599–2608. doi:10.1056/NEJMoa025039.

Examples

```
MedDiet <- computeMDS03(data = nutriSample,
        Vegetables = P41grCom + P42grCom,
        Legumes =  P46grCom,
        FruitAndNuts =  P50grCom + P52grCom + P53grCom,
        Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                  P60grCom + P61grCom + P62grCom,
        Fish = P35grCom + P36grCom + P37grCom + P38grCom,
        Meat = P29grCom + P30grCom + P31grCom + P32grCom,
        Dairy = P19grCom + P20grCom + P20grCom + P22grCom +
                P23grCom + P24grCom + P25grCom + P26grCom + P27grCom,
        Alcohol =  12 * (P94rac + P96rac + P97rac + P98rac + P99rac),
        Potatoes =  P43grCom +  P44grCom +  P45grCom,
        MUFA =  totalGrasaMonoins,
        SFA =  totalGrasaSat,
        Sex =  SEXO, men = "Hombre", women = "Mujer", frequency = "daily",
        output = "percent", rm.na = FALSE)
hist(MedDiet)
```

`computeMDS05` *computeMDS05*

Description

Computes the Mediterranean Diet adherence score developed by Trichopoulou et al. in 2005 (MDS05), which is an update of their previously developed version.

Usage

```
computeMDS05(data, Vegetables, Legumes, FruitAndNuts,
             Cereals, Potatoes = NULL, Fish, Meat, Dairy, Alcohol,
             Fats = NULL, MUFA = NULL, PUFA = NULL, SFA = NULL,
             Sex, men = "male", women= "female",
             frequency = NULL, output = "percent", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
Vegetables	Numeric variable with Vegetables consumption as grams
Legumes	Numeric variable with Legumes consumption as grams
FruitAndNuts	Numeric variable with consumption of Fruits and Nuts as grams
Cereals	Numeric variable with Cereals consumption as grams
Potatoes	Numeric variable with Potatoes consumption as grams
Fish	Numeric variable with Fish consumption as grams
Meat	Numeric variable with Meat consumption as grams
Dairy	Numeric variable with Dairy consumption as grams
Alcohol	Numeric variable with Alcohol consumption as etanol grams from any beberage origin
Fats	Optional. Numeric variable with a ratio of consumption of Mono and Poli Unsaturated Fatty Acids (MUFA + PUFA) over Saturated Fatty Acids (SFA). If it is not provided, then individual MUFA, PUFA and SFA should be provided
MUFA	Optional if Fats is provided. Numeric variable with consumption of Mono Unsaturated Fatty Acids, units should be the same as used with PUFA and SFA
PUFA	Optional if Fats is provided. Numeric variable with consumption of Poli Unsaturated Fatty Acids
SFA	Optional if Fats is provided. Numeric variable with consumption of Saturated Fatty Acids
Sex	Vector with gender, it can be numeric, factor or character, as long as its values are provided by 'men' and 'women' arguments.
men	A character string with the value of male gender, default is "male"
women	A character string with the value of female gender, default is "female"
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

This score is an update of the landmark first Mediterranean Diet Score (MDS), published in 1995, which includes fish consumption (previously introduced) and which sums MUFA + PUFA.

Original 1995 paper of Trichopoulou et al. included potatoes with cereals, but later research has challenged this view. If you want to compute the score as originally developed, provide potato consumption as 'Potatoes' argument, and you will get a NOTE informing you that both have been used together in the score. If you don't want to compute potatoes consumption, don't provide 'Potatoes' argument, and you will receive a NOTE informing you that you are diverting from the very original score.

Some score components are a combination of foods you may have as separated variables, if so, you can just add them toghether (v.gr. miFruitVariable + miNutsVariable).

Score values (MUFA + PUFA) / SFA. Depending in how your data has been developed, you can provide the ratio as 'Fats' argument or the triada 'MUFA', 'PUFA' and 'SFA', but if you provide this information by both of the ways, just 'Fats' argument will be computed, and you will receive a warning asking you to check the arguments.

Value

Computed MDS05 score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the fullchecking package dependencies ... NOTE No repository set, so cyclic dependency check skipped data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 9 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

References

Trichopoulou, A., A. Kouris-Blazos, M. L. Wahlqvist, C. Gnardellis, P. Lagiou, E. Polychronopoulos, T. Vassilakou, L. Lipworth, and D. Trichopoulos. 1995. "Diet and Overall Survival in Elderly People." BMJ (Clinical Research Ed.) 311 (7018): 1457–60.

Trichopoulou, Antonia, Tina Costacou, Christina Bamia, and Dimitrios Trichopoulos. 2003. "Adherence to a Mediterranean Diet and Survival in a Greek Population." New England Journal of Medicine 348 (26): 2599–2608. doi:10.1056/NEJMoa025039.

Trichopoulou, Antonia, Philippos Orfanos, Teresa Norat, Bas Bueno-de-Mesquita, Marga C. Ocke, Petra HM Peeters, Yvonne T. van der Schouw, et al. 2005. "Modified Mediterranean Diet and Survival: EPIC-Elderly Prospective Cohort Study." BMJ 330 (7498): 991. doi:10.1136/bmj.38415.644155.8F.

Examples

```
data(nutriSample)
MedDiet <- computeMDS05(data = nutriSample,
        Vegetables = P41grCom + P42grCom,
```

```
        Legumes =  P46grCom,
        FruitAndNuts =  P50grCom + P52grCom + P53grCom,
        Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                  P60grCom + P61grCom + P62grCom,
        Fish = P35grCom + P36grCom + P37grCom + P38grCom,
        Meat = P29grCom + P30grCom + P31grCom + P32grCom,
        Dairy = P19grCom + P20grCom + P22grCom + P23grCom +
                P24grCom + P25grCom + P26grCom + P27grCom,
        Alcohol =  12 * (P94rac + P96rac + P97rac + P98rac + P99rac),
        Potatoes =  P43grCom +  P44grCom +  P45grCom,
        MUFA =  totalGrasaMonoins,
        PUFA =  totalGrasaPoliins,
        SFA =  totalGrasaSat,
        Sex =  SEXO, men = "Hombre", women = "Mujer", frequency = "daily",
        output = "percent", rm.na = FALSE)
hist(MedDiet)
```

---

computeMDS12 *computeMDS12*

Description

Computes a 2012 update of the widely used Mediterranean Diet Score.

Usage

```
computeMDS12(data, Vegetables, Legumes, FruitAndNuts, Cereals, Potatoes = NULL,
             Fish, Dairy, Meat, Alcohol,
             OOprincipal, Sex, men = "male", women = "female",
             frequency = NULL, output = "percent", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
Vegetables	Numeric variable with Vegetables consumption as grams
Legumes	Numeric variable with Legumes consumption as grams
FruitAndNuts	Numeric variable with consumption of Fruits and Nuts as grams
Cereals	Numeric variable with Cereals consumption as grams
Potatoes	Numeric variable with Potatoes consumption as grams
Fish	Numeric variable with Fish consumption as grams
Dairy	Numeric variable with Dairy consumption as grams
Meat	Numeric variable with Meat consumption as grams
Alcohol	Numeric variable with Alcohol consumption as etanol grams from any beberage origin

OOprincipal	Integer. This item scores wether olive oil is the main dietary fat as a dichotomous variable (1-yes, 0-no).
Sex	Vector with gender, it can be numeric, factor or character, as long as its values are provided by 'men' and 'women' arguments.
men	A character string with the value of male gender, default is "male"
women	A character string with the value of female gender, default is "female"
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

This score is an update of the widely used MDS (Mediterranean Diet Score), with some modifications, the most relevant are the following: First, it uses fixed ('a priori') cut-offs, instead of using sample derived medians. Second, instead of scoring all variables dichotomously (0-1), it scores from 0 (minimum) to 2 (maximum), with items which can receive 1 point. As another difference, it stops evaluating Mono and Poli Unsaturated fats, but instead scores Olive Oil consumption. Olive Oil is considered dichotomously.

Value

Computed MDS score according to 2012 version. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 18 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Sofi, Francesco, Rosanna Abbate, Gian Franco Gensini, Alessandro Casini, Antonia Trichopoulou, and Christina Bamia. 2012. 'Identification of Change-Points in the Relationship between Food Groups in the Mediterranean Diet and Overall Mortality: An "a Posteriori" Approach'. European Journal of Nutrition 51 (2): 167–72. doi:10.1007/s00394-011-0202-7.

See Also

computeMDS95 computeMDS03 computeMDS05

Examples

```
data(nutriSample)
MedDiet <- computeMDS12(data = nutriSample,
        Vegetables = P41grCom + P42grCom,
        Legumes =  P46grCom,
        FruitAndNuts =  P50grCom + P52grCom + P53grCom,
        Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                  P60grCom + P61grCom + P62grCom,
        Fish = P35grCom + P36grCom + P37grCom + P38grCom,
        Meat = P29grCom + P30grCom + P31grCom + P32grCom,
        Dairy = P19grCom + P20grCom + P22grCom + P23grCom +
                P24grCom + P25grCom + P26grCom + P27grCom,
        Alcohol =  12 * (P94rac + P96rac + P97rac + P98rac + P99rac),
        Potatoes =  NULL,
        OOprincipal = ifelse(nutriSample$AceiteTipo == 1, 1, 0),
        Sex =  SEXO, men = "Hombre", women = "Mujer", frequency = "daily",
        output = "percent", rm.na = FALSE)
hist(MedDiet)
```

---

computeMDS95 *computeMDS95*

Description

Fist Mediterranean Adherence score index, developed by Trichopoulou et al. which has been extensively used and modified.

Usage

```
computeMDS95(data, Vegetables, Legumes, FruitAndNuts,
             Cereals, Potatoes = NULL, Meat, Dairy, Alcohol,
             Fats = NULL, MUFA = NULL, SFA = NULL,
             Sex, men = "male", women= "female",
             frequency = NULL, output = "percent", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
Vegetables	Numeric variable with Vegetables consumption as grams
Legumes	Numeric variable with Legumes consumption as grams
FruitAndNuts	Numeric variable with consumption of Fruits and Nuts as grams
Cereals	Numeric variable with Cereals consumption as grams
Potatoes	Numeric variable with Potatoes consumption as grams
Meat	Numeric variable with Meat consumption as grams
Dairy	Numeric variable with Dairy consumption as grams
Alcohol	Numeric variable with Alcohol consumption as etanol grams from any beberage origin
Fats	Optional. Numeric variable with a ratio of consumption of Mono Unsaturated Fatty Acids (MUFA) over Saturated Fatty Acids (SFA). If it is not provided, then individual MUFA and SFA should be provided
MUFA	Optional if Fats is provided. Numeric variable with consumption of Mono Unsaturated Fatty Acids, units should be the same as used with PUFA and SFA
SFA	Optional if Fats is provided. Numeric variable with consumption of Saturated Fatty Acids
Sex	Vector with gender, it can be numeric, factor or character, as long as its values are provided by 'men' and 'women' arguments. If 'Sex' argument is character or factor, and values for male are either 'man', 'male', 'MAN' or 'MALE', and for females are 'woman', 'female', 'WOMAN' or 'FEMALE', then, the arguments 'men' and 'women' can be missing
men	A character string with the value of male gender, default is "male"
women	A character string with the value of female gender, default is "female"
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

This is the fist Mediterranean Diet Score, which was developed by Antonia Trichopoulou and coleagues. At present, this score is not widely used, since it was later updated by its authors.

Nevertheless, as it is the first Mediterranean Diet Score developed, and is the basis of most of them, we think it deserves a places here.

Original 1995 paper of Trichopoulou et al. included potatoes with cereals, but later research has challenged this view. If you want to compute the score as originally developed, provide potato consumption as 'Potatoes' argument, and you will get a warning informing you that both have been used together in the score. If you don't want to compute potatoes consumption, don't provide 'Potatoes' argument, and you will receive a warning informing you that you are diverting from the very original score.

Value

Computed MDS95 score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 9 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Trichopoulou, A., A. Kouris-Blazos, M. L. Wahlqvist, C. Gnardellis, P. Lagiou, E. Polychronopoulos, T. Vassilakou, L. Lipworth, and D. Trichopoulos. 1995. "Diet and Overall Survival in Elderly People." BMJ (Clinical Research Ed.) 311 (7018): 1457–60.

Examples

```
data(nutriSample)
MedDiet <- computeMDS95(data = nutriSample,
        Vegetables = P41grCom + P42grCom,
        Legumes =  P46grCom,
        FruitAndNuts =  P50grCom + P52grCom + P53grCom,
        Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                  P60grCom + P61grCom + P62grCom,
        Meat = P29grCom + P30grCom + P31grCom + P32grCom,
        Dairy = P19grCom + P20grCom + P20grCom + P22grCom + P23grCom +
                P24grCom + P25grCom + P26grCom + P27grCom,
        Alcohol =  12 * (P94rac + P96rac + P97rac + P98rac + P99rac),
        Potatoes =  P43grCom +  P44grCom +  P45grCom,
```

```
        MUFA =  totalGrasaMonoins,
        SFA =  totalGrasaSat,
        Sex =  SEXO, men = "Hombre", women = "Mujer", frequency = "daily",
        output = "percent", rm.na = FALSE)
hist(MedDiet)
```

---

computeMSDPS *computeMSDPS*

Description

Computes Mediterranean-Style Dietary Pattern Score (MSDPS).

Usage

```
computeMSDPS(data, WholeCereals, Fruit, Vegetables, Dairy, Wine,
             Fish, Poultry, LegumesAndMore, Potatoes, Eggs, Sweets,
             Meat, OOprincipal,
             WholeCerealsK, FruitK, VegetablesK, DairyK, WineK,
             FishK, PoultryK, LegumesAndMoreK, PotatoesK, EggsK, SweetsK,
             MeatK, OliveOilK, Kcal,
             Sex, men = "male", women = "female",
             output = "percent", frequency = "daily", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns.
WholeCereals	Numeric variable with consumption of whole grain products as servings.
Fruit	Numeric variable with fruit consumption as servings.
Vegetables	Numeric variable with vegetables consumption as servings.
Dairy	Numeric variable with dairy consumption as servings.
Wine	Numeric variable with wine consumption as glasses.
Fish	Numeric variable with fish consumption as servings.
Poultry	Numeric variable with poultry consumption as servings.
LegumesAndMore	Numeric variable with legumes, nuts and olives consumption as servings.
Potatoes	Numeric variable with potatoes consumption as servings.
Eggs	Numeric variable with eggs consumption as servings.
Sweets	Numeric variable with sweets consumption as servings.
Meat	Numeric variable with red meat and meat products consumption as servings.
OOprincipal	Integer. This argument informs wether olive oil is the main dietary fat. 0 = olive oil is not usually consumed. 1 = olive oil and other vegetable oils are usually consumed. 2 = only olive oil is usually consumed.

WholeCerealsK	Numeric variable with energy (as Kcal) due to consumption of whole grain products.
FruitK	Numeric variable with energy (as Kcal) due to consumption of fruit.
VegetablesK	Numeric variable with energy (as Kcal) due to consumption of vegetables.
DairyK	Numeric variable with energy (as Kcal) due to consumption of dairy.
WineK	Numeric variable with energy (as Kcal) due to consumption of wine.
FishK	Numeric variable with energy (as Kcal) due to consumption of fish.
PoultryK	Numeric variable with energy (as Kcal) due to consumption of poultry.
LegumesAndMoreK	Numeric variable with energy (as Kcal) due to consumption of legumes, nuts and olives.
PotatoesK	Numeric variable with energy (as Kcal) due to consumption of potatoes.
EggsK	Numeric variable with energy (as Kcal) due to consumption of eggs.
SweetsK	Numeric variable with energy (as Kcal) due to consumption of sweets.
MeatK	Numeric variable with energy (as Kcal) due to consumption of red meat.
OliveOilK	Numeric variable with energy (as Kcal) due to consumption of olive oil.
Kcal	Numeric with total energy intake (as Kcal).
Sex	Vector with gender, it can be numeric, factor or character, as long as its values are provided by 'men' and 'women' arguments.
men	A character string with the value of male gender, default is "male"
women	A character string with the value of female gender, default is "female"
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')
output	A character string to set which output should the formula give, allowed values are 'data.frame' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

Computes Mediterranean-Style Dietary Pattern Score according to Rumawas et al. 2009.

$$MSDPS = \frac{\Sigma S_i}{130} * 100 * P$$

Where

$$S_i = 10 - \frac{desviation - from - recomended[\%]}{10}$$

$$P = \frac{Energyfrommedfoods}{Totalenergy}$$

As this scoring schema is not similar to others, we briefly explain it:

Step 1: The Score "S" of an item "i" has full score (10 points) if its consumed amount is the same as the standard recommendation (for instance, for fruit, 3 servings a day). If the amount is different, both as a lack or as an excess, more or less points are taken from the maximun possible, depending on how big this difference is.

For instance, if a particular food consumption is 80% of the recomended, the deviation from the recommendation is 20%. This "0% takes 2 points (1 point per each ten), so, instead of the maximun 10, this item deserves Si = 10 - 2 = 8 points.

Olive oil is not measured the same way as the other items. It is considered categorically: only olive oil (10 points), olive oil and other vegetable oils (5 points), no olive oil (0 points).

Step 2: After all items have been computed, they are sumed, and considered a percentage of maximun possible (13 items * 10 points = 130). So, at this step range goes from 0 to 100%.

Step 3: The previous percentage is adjusted with a correction factor "P", ranging from 0 to 1. This correction factor is the proportion of total energy intake provided by all foods included in the mediterranean diet pyramid, i.e., each of the 13 foods included in the score, over total energy intake. This allows the use of the score in non-Mediterranean populations, where large proportion of energy intake comes from foods that wouldn't be found in a mediterranean diet pyramid (like sugar sweetened soft drinks or margarine). Al the arguments about energy intake information are used to compute this correction factor.

This way a 100% is hard to reach.

Please note that Legumes are included with Nuts and Olives.

Value

Computed Mediterranean-Style Dietary Pattern Score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to a theoretical maximun of 100% (max. adhrence)

Author(s)

Miguel Menendez

References

Rumawas, Marcella E., Johanna T. Dwyer, Nicola M. Mckeown, James B. Meigs, Gail Rogers, and Paul F. Jacques. 2009. 'The Development of the Mediterranean-Style Dietary Pattern Score and Its Application to the American Diet in the Framingham Offspring Cohort'. The Journal of Nutrition 139 (6): 1150-56. doi:10.3945/jn.108.103424.

Examples

```
data(nutriSample)

# wether olive oil is principal or not is stored in the sample dataset
# in a different way than asked by formula.
# In the data set it is 1=olive oil, 2=seeds oil, 3=both
# so a transformation is performed:
Oil <- ifelse(nutriSample$AceiteTipo == 2, 0,
              ifelse(nutriSample$AceiteTipo == 3, 1,
                     ifelse(nutriSample$AceiteTipo == 1, 2, 0)))

MedDiet <-
computeMSDPS(data = nutriSample,
        # group of arguments about food consumption:
           WholeCereals = P56rac + ifelse(nutriSample$P63_2 == 2, nutriSample$P61rac, 0),
            Fruit = P50rac + P52rac,
            Vegetables = P41rac + P42rac,
            Dairy = P19rac + P20rac + P20rac + P22rac + P23rac +
                    P24rac + P25rac + P26rac + P27rac,
            Wine = P96rac,
            Fish = P35rac + P36rac + P37rac + P38rac,
            Poultry = P33rac,
            LegumesAndMore = P46rac + P53rac + P54rac,
            Potatoes = P43grCom +  P44grCom +  P45grCom,
            Eggs = P28rac,
            Sweets = P69rac + P70rac + P71rac + P72rac + P73rac,
            Meat = P29rac + P30rac + P31rac + P32rac,
            OOprincipal = Oil,

        # group of arguments about energy intake to compute correction factor:
         WholeCerealsK = P56Kcal + ifelse(nutriSample$P63_2 == 2, nutriSample$P61Kcal, 0),
            FruitK = P50Kcal + P52Kcal,
            VegetablesK = P41Kcal + P42Kcal,
            DairyK = P19Kcal + P20Kcal + P20Kcal + P22Kcal + P23Kcal +
                     P24Kcal + P25Kcal + P26Kcal + P27Kcal,
            WineK = P96Kcal,
            FishK = P35Kcal + P36Kcal + P37Kcal + P38Kcal,
            PoultryK = P33Kcal,
            LegumesAndMoreK = P46Kcal + P53Kcal + P54Kcal,
            PotatoesK = P43grCom +  P44grCom +  P45grCom,
            EggsK = P28Kcal,
            SweetsK = P69Kcal + P70Kcal + P71Kcal + P72Kcal + P73Kcal,
            MeatK = P29Kcal + P30Kcal + P31Kcal + P32Kcal,
            OliveOilK = AceiteKcal,
            Kcal = totalKcal,
```

```
        # final arguments:
            Sex = SEXO, men = "Hombre", women = "Mujer",
            output = "percent", frequency = "daily", rm.na = FALSE)
hist(MedDiet)
```

---

computePitsavos *computePitsavos*

Description

Computes the Mediterranean Diet adherence score developed by Pitsavos et al. in 2005, it can alo be found as Dietary Score (see Details).

Usage

```
computePitsavos(data, WholeCereals, Fruit, Vegetables, Potatoes,
                Legumes, OliveOil, OOmeasure = "gr", Fish, Meat,
                Poultry, WholeDairy, Wine, output = "percent",
                frequency = "daily", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns.
WholeCereals	Numeric variable with Whole Cereals consumption as servings.
Fruit	Numeric variable with Fruit consumption as servings.
Vegetables	Numeric variable with Vegetables consumption as servings.
Potatoes	Numeric variable with Potatoes consumption as servings.
Legumes	Numeric variable with Legumes consumption as servings.
OliveOil	Numeric variable with olive oil consumption, measure is set with the 'OOmeasure' argument.
OOmeasure	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (15 ml).
Fish	Numeric variable with Fish consumption as servings.
Meat	Numeric variable with Meat consumption as servings.
Poultry	Numeric variable with Poultry consumption as servings.
WholeDairy	Numeric variable with fish consumption as servings.
Wine	Numeric variable with Wine consumption as glasses.
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).

`frequency` A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

`rm.na` Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

We have chosen to name this score by its first author name (Pitsavos), althought it can be found in the literature as Dietary Score (DS) [Milà-Villarroel, 2011; D'Alesandro-De Pergola, 2015] or as a derivate from MDS (Waijers et al. [Waijers et al., 2007] refer to it as MDS-a IV)

Value

Computed score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 9 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

D'Alessandro, Annunziata, and Giovanni De Pergola. 2015. "Mediterranean Diet and Cardiovascular Disease: A Critical Evaluation of A Priori Dietary Indexes." Nutrients 7 (9): 7863-88. doi:10.3390/nu7095367.

Mila-Villarroel, Raimon, Anna Bach-Faig, Josep Puig, Anna Puchal, Andreu Farran, Lluis Serra-Majem, and Josep Lluis Carrasco. 2011. "Comparison and Evaluation of the Reliability of Indexes of Adherence to the Mediterranean Diet." Public Health Nutrition 14 (12A): 2338-45. doi:10.1017/S1368980011002606.

Pitsavos, Christos, Demosthenes B. Panagiotakos, Natalia Tzima, Christina Chrysohoou, Manolis Economou, Antonis Zampelas, and Christodoulos Stefanadis. 2005. "Adherence to the Mediterranean Diet Is Associated with Total Antioxidant Capacity in Healthy Adults: The ATTICA Study". The American Journal of Clinical Nutrition 82 (3): 694-99. http://ajcn.nutrition.org/content/82/3/694.

Waijers, Patricia M. C. M., Edith J. M. Feskens, and Marga C. Ocke. 2007. "A Critical Review of Predefined Diet Quality Scores." British Journal of Nutrition 97 (2): 219-231. doi:10.1017/S0007114507250421.

Examples

```
data(nutriSample)


MedDiet <- computePitsavos(data = nutriSample,
  WholeCereals = P56rac + ifelse(nutriSample$P63_2 == 2, nutriSample$P61rac, 0),
  Fruit = P50rac + P52rac,
  Vegetables = P41rac + P42rac,
  Potatoes = P43rac + P44rac + P45rac,
  Legumes = P46rac,
  OliveOil = Aceitegr,
  OOmeasure = "gr",
  Fish = P35rac + P36rac + P37rac + P38rac,
  Meat = P29rac + P30rac + P31rac + P32rac,
  Poultry = P33rac,
  WholeDairy = P19grCom + P22grCom,
  Wine = P96rac,
  output = "percent", frequency = "daily", rm.na = FALSE)

hist(MedDiet)
```

`computePredimed` *computePredimed*

Description

Computes the Mediterranean Diet adherence score used in PreDiMed trial (Prevencion con Dieta Mediterranea, Spanish which means Prevention with Mediterranean Diet)

Usage

```
computePredimed(data, OliveOil, OOmeasure = "gr", OOprincipal,
                Vegetables, Fruit, RedMeat, Butter, SoftDrinks,
                Wine, Legumes, Fish, Pastries, Nuts, WhiteMeat,
                Sofritos, output = "percent", rm.na = FALSE, frequency = NULL)
```

Arguments

`data`	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns.
`OliveOil`	Numeric with olive oil consumption. Units are set with the argument 'OOmeasure'.

OOmeasure	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (10 ml).
OOprincipal	Integer. This item scores wether olive oil is the main dietary fat as a dichotomous variable (1-yes, 0-no).
Vegetables	Numeric. Vegetables consumption measured as servings.
Fruit	Numeric. Fruit consumption measured as servings.
RedMeat	Numeric. RedMeat consumption measured as servings.
Butter	Numeric. Butter consumption measured as servings.
SoftDrinks	Numeric. SoftDrinks consumption measured as servings.
Wine	Numeric. Wine consumption measured as servings (glasses).
Legumes	Numeric. Legumes consumption measured as servings.
Fish	Numeric. Fish consumption measured as servings.
Pastries	Numeric. Pastries consumption measured as servings.
Nuts	Numeric. Nuts consumption measured as servings.
WhiteMeat	Integer. This item scores wether wite meats are preferred over red meats. So it is a dichotomous variable (1-yes, 0-no).
Sofritos	Numeric. Number of times 'sofrito' is consumed (see Details).
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

Details

This score was used in the landmark PreDiMed trial (Prevencion con Dieta Mediterranea, Spanish which means Prevention with Mediterranean Diet) (Estruch et al. 2013). It can also be found under the name MEDAS (MEditerranean Diet Adherence Screener) (Schroder et al. 2011)

Please note that olive oil is in thtree items: one measuring the amount of servings, other measuring if it is the main dietary fat, and another asking about 'sofrito' consumption. Supplementary material of Estruch et al. 2013 informs that one tablespoon is 10ml.

'Sofrito' is a special way to cook, a sauce made with tomato and onion, leek, or garlic, simmered with olive oil.

Value

Computed Predimed score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 9 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Estruch, Ramon, Emilio Ros, Jordi Salas-Salvado, Maria-Isabel Covas, Dolores Corella, Fernando Aros, Enrique Gomez-Gracia, et al. 2013. "Primary Prevention of Cardiovascular Disease with a Mediterranean Diet." New England Journal of Medicine 368 (14): 1279-90. doi:10.1056/NEJMoa1200303. (Supplementary material available at http://www.nejm.org/action/showSupplements?doi=10.1056

Martinez-Gonzalez, Miguel Angel, Dolores Corella, Jordi Salas-Salvado, Emilio Ros, Maria Isabel Covas, Miquel Fiol, Julia Warnberg, et al. 2012. "Cohort Profile: Design and Methods of the PREDIMED Study." International Journal of Epidemiology 41 (2): 377-385. http://ije.oxfordjournals.org/content/41/2/377.short.

Schroder, Helmut, Montserrat Fito, Ramon Estruch, Miguel A. Martinez-Gonzalez, Dolores Corella, Jordi Salas-Salvado, Rosa Lamuela-Raventos, et al. 2011. 'A Short Screener Is Valid for Assessing Mediterranean Diet Adherence among Older Spanish Men and Women'. The Journal of Nutrition 141 (6): 1140-45. doi:10.3945/jn.110.135566.

Examples

```
data(nutriSample)
MedDiet <- computePredimed(data = nutriSample, OliveOil = Aceitegr, OOmeasure = "gr",
                  OOprincipal = ifelse(nutriSample$AceiteTipo == 1, 1, 0),
                  Vegetables = P41rac + P42rac,
                  Fruit = P50rac + P52rac,
                  RedMeat = P29rac + P31rac,
                  Butter = P79rac,
                  SoftDrinks = P89rac + P90rac,
                  Wine = P96rac,
                  Legumes = P46rac,
                  Fish = P35rac + P36rac + P37rac + P38rac,
                  Pastries = P69rac + P70rac + P71rac + P72rac + P73rac,
                  Nuts = P53rac,
```

```
                WhiteMeat = ifelse(nutriSample$P30rac > nutriSample$P29rac, 1, 0),
            Sofritos = rep(0, nrow(data)), # data lacks this variable, so we go on without it
                output = "percent", rm.na = FALSE, frequency = "daily")
hist(MedDiet)
```

---

computeRMED *computeRMED*

Description

Computes the Revised Mediterranean Diet adherence score according to Buckland et al. in 2009, also known as rMED.

Usage

```
computeRMED(data, FruitAndNuts, Vegetables, Legumes, Cereals, Fish,
            OliveOil, OOmeasure = "gr", Meat, Dairy, Alcohol,
            Kcal, Sex, men="male", women="female",
            frequency = NULL, output = "percent", rm.na = FALSE)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
FruitAndNuts	Numeric variable with consumption of Fruits and Nuts as grams.
Vegetables	Numeric variable with Vegetables consumption as grams
Legumes	Numeric variable with Legumes consumption as grams
Cereals	Numeric variable with Legumes consumption as grams
Fish	Numeric variable with Fish consumption as grams
OliveOil	Numeric variable with olive oil consumption, measure is set with the 'OOmeasure' argument
OOmeasure	Character string which informs about the unit of the argument 'OliveOil'. Allowed values are 'gr', 'ml' and 'serving', which means respectively grams, mililiters and servings of 1 table spoon (15 ml).
Meat	Numeric variable with Meat consumption as grams
Dairy	Numeric variable with Dairy consumption as grams
Alcohol	Numeric variable with Alcohol consumption as etanol grams from any beberage origin
Kcal	Numeric variable with energy consumption in kilocalories.
Sex	Vector with gender, it can be numeric, factor or character, as long as its values are provided by 'men' and 'women' arguments. If 'Sex' argument is character or factor, and values for male are either 'man', 'male', 'MAN' or 'MALE', and for females are 'woman', 'female', 'WOMAN' or 'FEMALE', then, the arguments 'men' and 'women' can be missing

`men` A character string with the value of male gender, default is "male"

`women` A character string with the value of female gender, default is "female"

`frequency` A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

`output` A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).

`rm.na` Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)

Details

the rMED questionnaire scores food consumption as grams by 1000Kcal/day, but arguments are expected to be provided as grams eaten by day.

Value

Computed RMed score. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 18 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Buckland, Genevieve, Carlos A. Gonzalez, Antonio Agudo, Mireia Vilardell, Antoni Berenguer, Pilar Amiano, Eva Ardanaz, et al. 2009. 'Adherence to the Mediterranean Diet and Risk of Coronary Heart Disease in the Spanish EPIC Cohort Study'. American Journal of Epidemiology, January, kwp282. doi:10.1093/aje/kwp282.

Examples

```
data(nutriSample)

MedDiet <- computeRMED(data = nutriSample,
                       Kcal = totalKcal,
                       FruitAndNuts = P50grCom + P52grCom,
                       Vegetables = P41grCom + P42grCom,
                       Legumes = P46grCom,
                       Cereals = P55grCom + P56grCom + P57grCom + P59grCom +
                                 P60grCom + P61grCom + P62grCom,
                       Fish = P35grCom + P36grCom + P37grCom + P38grCom,
                       OliveOil = Aceitegr,
                       Meat = P29grCom + P30grCom + P31grCom + P32grCom,
                       Dairy= P19grCom + P20grCom + P20grCom + P22grCom + P23grCom +
                              P24grCom + P25grCom + P26grCom + P27grCom,
                       Alcohol = 10 * (P94rac + P96rac + P97rac + P98rac + P99rac),
                       Sex = SEXO, men = "Hombre", women = "Mujer",
                       frequency = "daily", output = "percent", rm.na = FALSE)
summary(MedDiet)
```

---

computeSofi *ComputeSofi*

Description

Computes Mediterranean Diet adherence score accoring to the literature review by Sofi et al. in 2014.

Usage

```
computeSofi(data, Fruit, Vegetables, Legumes, Cereals,
            Fish, Meat, Dairy, Alcohol, OliveOil,
            output = "percent", rm.na = FALSE, frequency = NULL)
```

Arguments

data	Your data set with nutritional information about food or nutrient consumption. Each row is expected to be a person, and food or nutrient intake are in columns
Fruit	Numeric variable with fruit consumption as servings (1 serving: 150g)
Vegetables	Numeric variable with vegetables consumption as servings (1 serving: 100g)
Legumes	Numeric variable with legumes consumption as servings (1 serving: 70g)
Cereals	Numeric variable with cereal consumption as servings (1 serving: 130g)
Fish	Numeric variable with fish consumption as servings (1 serving: 100g)
Meat	Numeric variable with meat and meat products consumption as servings (1 serving: 80g)

Dairy	Numeric variable with dairy consumption as servings (1 serving: 180g)
Alcohol	Numeric variable with alcohol intake as Alcohol Units (1 Alcohol Unit: 12g)
OliveOil	Integer variable indicating if olive oil consumption is consumed as 0 = occasional use, 1 = frequent use or 2 = regular use
output	A character string to set which output should the formula give, allowed values are 'data.frame', 'score' and 'percent' (default).
rm.na	Logical. If set to FALSE (default), a diet score will be computed only if a person has all score components informed. If set to TRUE, NA values in score components will be drop off and a value of available components will be returned, but percent of score adherence will be computed with basis of the whole score range (see Details)
frequency	A character string. Allowed values are 'daily', 'weekly' and 'monthly'. It informs about the frequency which food or nutrient consumption refers to (i.e. wether the rest of arguments are 'grams per day' or 'grams per week' or 'grams per month')

Details

This questionnaire vas developed after a systematic literature review (Sofi et al., 2014). To set its cut-offs it considered the amounts of food in the included studies, which studied adherence to mediterranean diet and health status.

Value

Computed score according to Sofi et al. 2014. Depending on 'output' argument, value can be a data.frame, or a vector:

`if output = 'data.frame'`
: A data frame with a row corresponding to each person in data. Columns are the score of each component, as well as the global score as natural sum ('absolute' column) and as percentage ('percent' column)

`if output = 'score'`
: Instead of the full data.frame, just the integer vector corresponding to the absolute points of adherence to Mediterranean Diet for each person, from 0 (min.) to 18 (max.)

`if output = 'percent'`
: Instead of the full data.frame, just the numeric vector corresponding to the percent of adherence to Mediterranean Diet for each person, from 0 (min. adherence) to 100 percent (max. adhrence)

Author(s)

Miguel Menendez

References

Sofi, Francesco, Claudio Macchi, Rosanna Abbate, Gian Franco Gensini, and Alessandro Casini. 2014. 'Mediterranean Diet and Health Status: An Updated Meta-Analysis and a Proposal for a Literature-Based Adherence Score'. Public Health Nutrition 17 (12): 2769-82. doi:10.1017/S1368980013003169.

Examples

```
data(nutriSample)

# wether olive oil is principal or not is stored in the sample dataset
# in a different way than asked by formula.
# In the data set it is 1=olive oil, 2=seeds oil, 3=both
# so a transformation is performed:
Oil <- ifelse(nutriSample$AceiteTipo == 2, 0,
              ifelse(nutriSample$AceiteTipo == 3, 1,
                     ifelse(nutriSample$AceiteTipo == 1, 2, 0)))

Sofi <- computeSofi(data = nutriSample,
              Fruit = P50rac + P52rac,
              Vegetables = P41rac +  P42rac,
              Legumes = P46rac,
              Cereals = P55rac + P56rac + P57rac + P59rac + P60rac + P61rac + P62rac,
              Fish = P35rac + P36rac + P37rac + P38rac,
              Meat = P29rac + P30rac + P31rac + P32rac,
              Dairy = P19rac + P20rac + P20rac + P22rac + P23rac +
                      P24rac + P25rac + P26rac + P27rac,
              Alcohol = P94rac + P96rac + P97rac + P98rac + P99rac,
              OliveOil = Oil,
              output = "data.frame", rm.na = FALSE, frequency = "daily")

hist(Sofi$percent)
```

---

nutriSample *Sample from a nutriepidemiological study*

Description

A sample of 192 Spanish people from a nutriepidemiological study, from DRECE group (Dieta y Riesgo de Enfermedad Cardiovascular en España [Diet and Cardiovascular Risk in Spain]). Food consumption was assessed by a Frequency Food Questionnaire. For all foods or nutrients, food consumption is stored as daily consumption.

Usage

```
data("nutriSample")
```

Format

A data frame with 192 observations on the following variables.

`IDE` integer, identification number

`PROVINCIA` geographic region of procedence of the person

`SEXO` gender information

`EDAD` age as years

FUMADOR smoking habit of the person 0 = never smoker, 1 = current smoker, 2 = former smoker

HIPERTENSO if the person has prior diagnose of High Blood Pressure

MEDIC_TENS if the person is under blood lowering pressure treatment

HIPER_COLES if the person has prior diagnose of Dyslipidemia

MEDIC_COLES if the person is under lipid lowering treatment

ANT_CARDIO if the person has a history of coronary events

DIABETES if the person has prior diagnose of Diabetes Mellitus

peso weight in kg

altura heigth in cm

TAS1 first systolic blood pressure measurement in mmHg

TAD1 first diastolic blood pressure measurement in mmHg

TAS2 second systolic blood pressure measurement in mmHg

TAD2 second diastolic blood pressure measurement in mmHg

Colesterol plasmatic total Cholesterol

LDL plasmatic Low Density Lipoprotein

HDL plasmatic High Density Lipoprotein

TG plasmatic triglycerides

APO.B plasmatic Apolipoprotein B

APO.A plasmatic Apolipoprotein A

P19grCom Edible portion (in grams) of whole milk

P19Kcal Kcal attributable to consumption of whole milk

P19rac Servings of whole milk

P20grCom Edible portion (in grams) of skimmed or semi-skimmed mil

P20Kcal Kcal attributable to consumption of skimmed or semi-skimmed mil

P20rac Servings of skimmed or semi-skimmed mil

P21Kcal Kcal attributable to consumption of milk enriched with omega-3 acid

P22grCom Edible portion (in grams) of whole yogurt

P22rac Servings of whole yogurt

P22Kcal Kcal attributable to consumption of whole yogurt

P23grCom Edible portion (in grams) of skimmed or semi-skimmed yogurt

P23rac Servings of skimmed or semi-skimmed yogurt

P23Kcal Kcal attributable to consumption of skimmed or semi-skimmed yogurt

P24grCom Edible portion (in grams) of enriched with probiotics yogurt

P24rac Servings of enriched with probiotics yogurt

P24Kcal Kcal attributable to consumption of enriched with probiotics yogurt

P25grCom Edible portion (in grams) of dairy products, usually desserts, like custard, junket, flan or requeson

P25rac Servings of dairy products, usually desserts, like custard, junket, flan or requeson

P25Kcal Kcal attributable to consumption of dairy products, usually desserts, like custard, junket, flan or requeson

P26grCom Edible portion (in grams) of unripened cheese

P26Kcal Kcal attributable to consumption of unripened cheese

P26rac Servings of unripened cheese

P27grCom Edible portion (in grams) of cheese (hard, semi-hard, ball, blue...)

P27Kcal Kcal attributable to consumption of cheese (hard, semi-hard, ball, blue...)

P27rac Servings of cheese (hard, semi-hard, ball, blue...)

P28Kcal Kcal attributable to consumption of eggs

P28rac Servings of eggs

P29grCom Edible portion (in grams) of red meat (cattle, lamb, pork)

P29grGrasa Fat intake attributable to consumption of red meat (cattle, lamb, pork)

P29Kcal Kcal attributable to consumption of red meat (cattle, lamb, pork)

P29rac Servings of red meat (cattle, lamb, pork)

P30grCom Edible portion (in grams) of white meat (poultry, rabbit)

P30grGrasa Fat intake attributable to consumption of white meat (poultry, rabbit)

P30Kcal Kcal attributable to consumption of white meat (poultry, rabbit)

P30rac Servings of white meat (poultry, rabbit)

P31grCom Edible portion (in grams) of cold cuts ("embutido")

P31grGrasa Fat intake attributable to consumption of cold cuts ("embutido")

P31Kcal Kcal attributable to consumption of cold cuts ("embutido")

P31rac Servings of cold cuts ("embutido")

P32grCom Edible portion (in grams) of serrano ham

P32grGrasa Fat intake attributable to consumption of serrano ham

P32Kcal Kcal attributable to consumption of serrano ham

P32rac Servings of serrano ham

P33grGrasa Fat intake attributable to consumption of York ham

P33rac Servings of York ham

P33Kcal Kcal attributable to consumption of York ham

P34grGrasa Fat intake attributable to consumption of offal (guts, pluck or organ meats)

P35grCom Edible portion (in grams) of white fish

P35Kcal Kcal attributable to consumption of white fish

P35rac Servings of white fish

P36grCom Edible portion (in grams) of blue fish

P36Kcal Kcal attributable to consumption of blue fish

P36rac Servings of blue fish

P37grCom Edible portion (in grams) of shellfish

P37Kcal Kcal attributable to consumption of shellfish

P37rac Servings of shellfish

P38grCom Edible portion (in grams) of tinned fish

P38Kcal Kcal attributable to consumption of tinned fish

P38rac Servings of tinned fish

P41grCom Edible portion (in grams) of salads

P41Kcal Kcal attributable to consumption of salads

P41rac Servings of salads

P42grCom Edible portion (in grams) of boiled or grilled vegetables

P42Kcal Kcal attributable to consumption of boiled or grilled vegetables

P42rac Servings of boiled or grilled vegetables

P43grCom Edible portion (in grams) of boiled or roasted potatoes

P43Kcal Kcal attributable to consumption of boiled or roasted potatoes

P43rac Servings of boiled or roasted potatoes

P44grCom Edible portion (in grams) of fried home cooked potatoes (not frozen)

P44Kcal Kcal attributable to consumption of fried home cooked potatoes (not frozen)

P44rac Servings of fried home cooked potatoes (not frozen)

P45grCom Edible portion (in grams) of fried frozen potatoes or eaten in restaurants or fast food

P45rac Servings of fried frozen potatoes or eaten in restaurants or fast food

P45Kcal Kcal attributable to consumption of fried frozen potatoes or eaten in restaurants or fast food

P46grCom Edible portion (in grams) of legumes

P46Kcal Kcal attributable to consumption of legumes

P46rac Servings of legumes

P50grCom Edible portion (in grams) of fresh fruit

P50Kcal Kcal attributable to consumption of fresh fruit

P50rac Servings of fresh fruit

P52grCom Edible portion (in grams) of dried figs, dried grapes, dried plums or dates

P52rac Servings of dried figs, dried grapes, dried plums or dates

P52Kcal Kcal attributable to consumption of dried figs, dried grapes, dried plums or dates

P53grCom Edible portion (in grams) of nuts (almonds, pistachios, walnuts, hazelnuts or peanuts)

P53Kcal Kcal attributable to consumption of nuts (almonds, pistachios, walnuts, hazelnuts or peanuts)

P53rac Servings of nuts (almonds, pistachios, walnuts, hazelnuts or peanuts)

P54Kcal Kcal attributable to consumption of olives

P54rac Servings of olives

P55grCom Edible portion (in grams) of white bread

P55Kcal Kcal attributable to consumption of white bread

P55rac Servings of white bread

P56grCom Edible portion (in grams) of whole grain bread

P56Kcal Kcal attributable to consumption of whole grain bread

P56rac Servings of whole grain bread

P57grCom Edible portion (in grams) of toast bread

P57Kcal Kcal attributable to consumption of toast bread

P57rac Servings of toast bread

P59grCom Edible portion (in grams) of breakfast cereals

P59Kcal Kcal attributable to consumption of breakfast cereals

P59rac Servings of breakfast cereals

P60grCom Edible portion (in grams) of fiber enriched breakfast cereals

P60Kcal Kcal attributable to consumption of fiber enriched breakfast cereals

P60rac Servings of fiber enriched breakfast cereals

P61grCom Edible portion (in grams) of white rice

P61Kcal Kcal attributable to consumption of white rice

P61rac Servings of white rice

P62grCom Edible portion (in grams) of paella (a traditionl Spanish dish based on rice with yellow colorant)

P62Kcal Kcal attributable to consumption of paella (a traditionl Spanish dish based on rice with yellow colorant)

P62rac Servings of paella (a traditionl Spanish dish based on rice with yellow colorant)

P63_2 A question about consumption of whole bread (1) or white bread (0)

P69Kcal Kcal attributable to consumption of pastries

P69rac Servings of pastries

P70Kcal Kcal attributable to consumption of churros and fritters

P70rac Servings of churros and fritters

P71Kcal Kcal attributable to consumption of cakes

P71rac Servings of cakes

P72Kcal Kcal attributable to consumption of chocolate or bonbons

P72rac Servings of chocolate or bonbons

P73Kcal Kcal attributable to consumption of ice cream

P73rac Servings of ice cream

P75rac Servings of sunflower seeds

P79rac Servings of butter

P84Kcal Kcal attributable to consumption of sugar

P89Kcal Kcal attributable to consumption of soft drinks

P89rac Servings of soft drinks

`P90Kcal` Kcal attributable to consumption of diet soft drinks

`P90rac` Servings of diet soft drinks

`P94rac` Servings of beer

`P96Kcal` Kcal attributable to consumption of wine

`P96rac` Servings of wine

`P97rac` Servings of vermouth, fine wine or sweet wine

`P98rac` Servings of liquor or anisette

`P99rac` Servings of spirits (whiskey, cognac, gin)

`Aceitegr` olive oil consumption in grams

`AceiteKcal` Kcal attributable to olive oil consumption

`AceiteTipo` kind of oil preferred by the surveyed person (1 = olive oil, 2 = seeds oil, 3 = both)

`totalgr` Total Food consumption, included edible and not edible, in grams

`totalgrCom` Total Edible food consumption, in grams, including liquid foods like milk

`grBebidas` total beberage intake in ml not coming directly from drinken water

`grSinBebidas` total food consumption in grams, without liquid components

`totalCH` total CarboHydrates consumption (grams per day)

`totalProt` total Protein consumption (grams per day)

`totalGrasa` total Fat consumption (grams per day)

`totalGrasaSat` total Saturated Fat consumption (grams per day)

`totalGrasaMonoins` total Monounsaturated Fat consumption (grams per day)

`totalGrasaPoliins` total Polyunsaturated Fat consumption (grams per day)

`totalCol` total Cholesterol consumption (in mg per day)

`totalFibra` total Fiber consumption (grams per day)

`totalKcal` total kcal eaten per day

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Examples

```
data(nutriSample)
summary(nutriSample$totalKcal)
```

`periodicity` *Transforms data codified as daily, weekly or monthly, to any other of them.*

Description

Diferent scores of Mediterranean Diet set cutoffs of daily, weekly or monthly consumption. Additionally, a dataset can be stored as diferent frequency of consumption. This function has been created to be called by others, it just multiplies or divides by the suitable numbre (for instance, from 'daily' to 'weekly' it just multiplies by 7)

Usage

```
periodicity(x, OriginalFreq, TargetFreq)
```

Arguments

`x`	numeric variable or a list of numeric variables, which want to be converted
`OriginalFreq`	character string. The frequency in which information was captured (should be provided by user). Allowed values are 'daily', 'weekly' or 'monthly'
`TargetFreq`	character string. The frequency in which information has to be transformed. Allowed values are 'daily', 'weekly' or 'monthly'. Usually it will be provided by another formula, depending in its scoring scheme

Value

A numeric vector, or a list of numeric vectors.

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Examples

```
foodA <- c(1,2,3)
foodB <- c(3,2,1)
L <- list(foodA = foodA, foodB= foodB)

# Use with a numeric variable
periodicity(foodA, "daily", "weekly")

#Use with a list
periodicity(L, "daily", "weekly")
```

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