# **/\*The SAS program (HEI-2015 Individual Scores using multiple days of data from ASA24-2016 and ASA24-2018)**

**ByPerson.SAS \*/**

/\*This SAS program can be used to calculate Healthy Eating Index (HEI)-2015 scores from 24-hour recall or food records data collected using ASA24-2016 and ASA24-2018. This program calculates HEI-2015 component and total scores for each individual (using multiple recalls, if available, for a single respondent). Additional code that calculates HEI-2015 component and total scores for each day of 24HR recall or food record data is available on the ASA24 HEI Resources page. \*/

/\*This program has been tested using SAS, version 9.4 and uses the 'Totals' analysis file from ASA24-2016 and ASA24-2018. These program files can be downloaded from the ASA24 Researcher website page. The data file should be in CSV format. \*/

/\*Note: Some users have found that the SAS program will drop observations from the analysis if the ID field is not the same length for all observations. To prevent this error, the observations with the longest ID length should be listed first when the data is imported into SAS. \*/

/\*Please see accompanying readme file. \*/

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**/\*INSTRUCTIONS – complete tasks 1-4 in this section, and run these SAS codes before proceeding to the HEI-2015 scoring program that follows\*/**

/\*1. Create a folder on your computer “home folder”, and save the ASA24 data, and the required HEI-2015 macro in it. Specify the path to the folder. \*/

%let home = C:\Users\Documents\ASA24; /\*In this Example, the “home” folder is in C Drive, within Documents, and is called ASA24. \*/

/\*2. Filename here specifies the input file. \*/

filename Totals “&home\Totals\Totals.csv”; /\* In this example, the ASA24-2016 or ASA24-2018 Daily Total Nutrient and Pyramid Equivalents data “Totals”, are saved in a folder called “Totals”, within the “home” folder. The data are in csv format. \*/

/\*3. Create a folder in the "Home" folder, where the output file, containing HEI-2015 component and total scores for each respondent, are to be exported. Specify the name of the folder. \*/

filename res “&home\res”; /\*In this Example, the folder is called “RES”, within the “home” folder, and the exported results will be a csv file called “hei2015r”. \*/

/\*4. Read in required HEI-2015 scoring macro. This macro must be saved within the home folder. \*/

%include “&home\hei2015.score.macro.sas”;

/\*NOTE: Once you have completed all the steps above, all you need to do is run the SAS program below. Unless you used different names for your dataset and folders, no other action is required from you. \*/

TITLE 'ASA24-2016 and ASA24-2018 HEI-2015 scores - by person using all days';

/\*Step 1.

Input daily total data and create five additional required variables. These variables are:

FWHOLEFRT, MONOPOLY, VTOTALLEG, VDRKGRLEG, PFALLPROTLEG, and PFSEAPLANTLEG

\*/

**Proc** **import** datafile=Totals

Out=Totals

Dbms=csv

Replace;

Getnames=yes;

**Run**;

**DATA** Totals;

SET Totals;

FWHOLEFRT=F\_CITMLB+F\_OTHER;

MONOPOLY=MFAT+PFAT;

VTOTALLEG=V\_TOTAL+V\_LEGUMES;

VDRKGRLEG=V\_DRKGR+V\_LEGUMES;

PFALLPROTLEG=PF\_MPS\_TOTAL+PF\_EGGS+PF\_NUTSDS+PF\_SOY+PF\_LEGUMES;

PFSEAPLANTLEG=PF\_SEAFD\_HI+PF\_SEAFD\_LOW+PF\_NUTSDS+PF\_SOY+PF\_LEGUMES;

**run**;

/\*Step 2.

Calculates total food group and nutrient intake over all possible days reported per individual.

\*/

**proc** **sort** data=Totals;

by UserName UserID;

**run**;

\*get sum per person of variables of interest;

**proc** **means** data=Totals noprint;

by UserName UserID;

var KCAL VTOTALLEG VDRKGRLEG F\_TOTAL FWHOLEFRT G\_WHOLE D\_TOTAL

PFALLPROTLEG PFSEAPLANTLEG MONOPOLY SFAT SODI G\_REFINED ADD\_SUGARS;

output out=idtot sum=;

**run**;

/\*Step 3.

Runs the HEI2015 scoring macro which calculates intake density amounts and HEI scores.

\*/

%***HEI2015*** (indat=idtot,

kcal= KCAL,

vtotalleg= VTOTALLEG,

vdrkgrleg= VDRKGRLEG,

f\_total= F\_TOTAL,

fwholefrt=FWHOLEFRT,

g\_whole= G\_WHOLE,

d\_total= D\_TOTAL,

pfallprotleg= PFALLPROTLEG,

pfseaplantleg= PFSEAPLANTLEG,

monopoly=MONOPOLY,

satfat=SFAT,

sodium=SODI,

g\_refined=G\_REFINED,

add\_sugars=ADD\_SUGARS,

outdat=hei2015);

/\*Step 4.

Displays and saves the results.

\*/

**Data** hei2015r (keep=UserName UserID kcal HEI2015C1\_TOTALVEG HEI2015C2\_GREEN\_AND\_BEAN HEI2015C3\_TOTALFRUIT

HEI2015C4\_WHOLEFRUIT HEI2015C5\_WHOLEGRAIN HEI2015C6\_TOTALDAIRY HEI2015C7\_TOTPROT HEI2015C8\_SEAPLANT\_PROT

HEI2015C9\_FATTYACID HEI2015C10\_SODIUM HEI2015C11\_REFINEDGRAIN HEI2015C12\_SFAT HEI2015C13\_ADDSUG HEI2015\_TOTAL\_SCORE);

Set hei2015;

**Run**;

**proc** **means** n nmiss min max mean data=hei2015r;

**run**;

**proc** **export** data= hei2015r

file=res

dbms=csv

replace;

**run**;