

## Appendix 24

# Healthy Eating Index (HEI)

The [Healthy Eating Index \(HEI\)](https://epi.grants.cancer.gov/hei/developing.html) is a tool developed by the United States Department of Agriculture (USDA) and the National Cancer Institute (NCI) to evaluate the extent to which diets, menus, or a set of foods are consistent with the Dietary Guidelines for Americans (DGA). To learn more about the HEI, including the components and scoring, visit <https://epi.grants.cancer.gov/hei/developing.html>.

For intake projects (recall, record, and record-assisted recall) and menu projects, NDSR generates Healthy Eating Index (HEI) Output Files. HEI total scores, component scores, and contributing dietary constituents are provided at the meal level in file 22. HEI total scores, component scores, and contributing dietary constituents are provided for daily dietary intake records in file 23. File 24 provides HEI total scores, component scores, and contributing dietary constituents for menu records.

One total score and one set of component scores are calculated for each intake day (provided in file 23), regardless of how many records are available per person in the project. The output files also provide the contributing dietary constituents to facilitate more complex HEI score calculation methods.

---

**NOTE:** Two differences exist between the calculations used for NDSR 2022 HEI 2015 Output Files and the Legacy SAS code provided on the NCC website. Please see the [Healthy Eating Index](#) web page for the differences in how some contributing dietary constituents are calculated between the two methods.

---

## HEI 2015 Scoring Standards:

These tables include the Healthy Eating Index 2015 scoring standards for each of the 13 components. The total score and component scores can be found in Output Files 22, 23, and 24. Note that intakes between the minimum and maximum standards are scored proportionately. For convenience, SAS variable names are provided for each score.

---

**NOTE:** The SAS variable names in these tables come from the NDSINPUT.SAS input statements provided in the Additional Files. See “*Appendix 18, Additional Files*” for more details about the NDSR Additional Files.

---

HEI 2015 Total and Component Scores				
SAS Variable Name	Description	Explanation		
rmHEIX2015_TOTALSCORE	HEI 2015 Total Score	Sum of all thirteen component scores		
		Optimum Score	Standard for Maximum Score	Standard for Minimum Score of Zero
rmHEIX2015_TOTALFRUIT	HEI 2015 Total Fruits (0-5)	5	≥0.8 cup eq/1,000 kcal	No fruit

<b>HEI 2015 Total and Component Scores</b>				
<b>SAS Variable Name</b>	<b>Description</b>			
		<b>Optimum Score</b>	<b>Standard for Maximum Score</b>	<b>Standard for Minimum Score of Zero</b>
rmHEIX2015_WHOLEFRUIT	HEI 2015 Whole Fruits (0-5)	5	≥0.4 cup eq/1,000 kcal	No whole fruit
rmHEIX2015_TOTALVEG	HEI 2015 Total Vegetables (0-5)	5	≥1.1 cup eq/1,000 kcal	No vegetables
rmHEIX2015_GREEN_AND_BEAN	HEI 2015 Greens and Beans (0-5)	5	≥0.2 cup eq/1,000 kcal	No dark-green vegetables or legumes
rmHEIX2015_WHOLEGRAIN	HEI 2015 Whole Grains (0-10)	10	≥1.5 oz eq/1,000 kcal	No whole grains
rmHEIX2015_DAIRY	HEI 2015 Dairy (0-10)	10	≥1.3 cup eq/1,000 kcal	No dairy
rmHEIX2015_TOTALPROTEIN	HEI 2015 Total Protein Foods (0-5)	5	≥2.5 oz eq/1,000 kcal	No protein foods
rmHEIX2015_SEAPLANTPROTEIN	HEI 2015 Seafood and Plant Proteins (0-5)	5	≥0.8 oz eq/1,000 kcal	No seafood or plant proteins
rmHEIX2015_FATTYACID	HEI 2015 Fatty Acids (0-10)	10	(PUFAs+MUFAs)/SFAs ≥2.5	(PUFAs+MUFAs)/SFAs ≤1.2
rmHEIX2015_REFINEDGRAIN	HEI 2015 Refined Grains (0-10)	10	≤1.8 oz eq/1,000 kcal	≥4.3 oz eq/1,000 kcal
rmHEIX2015_SODIUM	HEI 2015 Sodium (0-10)	10	≤1.1 gram/1,000 kcal	≥2.0 grams/1,000 kcal
rmHEIX2015_ADDEDSUGARS	HEI 2015 Added Sugars (0-10)	10	≤6.5% of energy	≥26% of energy
rmHEIX2015_SATFATS	HEI 2015 Saturated Fats (0-10)	10	≤8% of energy	≥16% of energy

## HEI 2015 Contributing Dietary Constituents:

This table includes explanations of the contributing dietary constituents used to generate the component scores. These values are found in Output Files 22, 23, and 24. For convenience, linkages to SAS code variable names are provided for each score and constituent.

---

**NOTE:** The SAS variable names in these tables come from the NDSINPUT.SAS input statements provided in the Additional Files. See “Appendix 18, Additional Files” for more details about the NDSR Additional Files.

---

<b>HEI 2015 Contributing Dietary Constituents</b>		
<b>SAS Variable name</b>	<b>Description</b>	<b>Details</b>
rmxhei2015_totalfruit	Total Fruit Servings in cup equivalents per 1000 kcal	Calculated from cup or ounce equivalents. See related descriptions below.
rmxhei2015_wholefruit	Whole Fruit Servings in cup equivalents per 1000 kcal	
rmxhei2015_totalveg	Total Vegetable Servings in cup equivalents per 1000 kcal	
rmxhei2015_green_and_bean	Greens and Beans Servings in cup equivalents per 1000 kcal	
rmxhei2015_wholegrain	Whole Grain Servings in ounce equivalents per 1000 kcal	
rmxhei2015_dairy	Dairy Servings in cup equivalents per 1000 kcal	
rmxhei2015_totalprotein	Total Protein Servings in ounce equivalents per 1000 kcal	
rmxhei2015_seaplantprotein	Seafood and Plant Protein Servings in ounce equivalents per 1000 kcal	
rmxhei2015_fattyacid	Fatty Acids Ratio	Sum of total PUFAs and total MUFAs divided by total SFAs (from output file 04)
rmxhei2015_refinedgrain	Refined Grains in ounce equivalents per 1000 kcal	Calculated from ounce equivalents. See related descriptions below.
rmxhei2015_sodium	Sodium (g) per 1000 kcal	
rmxhei2015_addedsugars	% Calories from Added Sugars (by Total Sugars)	
rmxhei2015_satfats	% Calories from SFA	
rmhei2015_totalfruit	Total Fruit Servings in cup equivalents	Includes fresh, frozen, cooked, canned, and dried fruits; 100% fruit juices; avocados

<b>HEI 2015 Contributing Dietary Constituents</b>		
<b>SAS Variable name</b>	<b>Description</b>	<b>Details</b>
rmhei2015_wholefruit	Whole Fruit Servings in cup equivalents	Includes fresh, frozen, cooked, canned, and dried fruits; avocados
rmhei2015_totalveg	Total Vegetable Servings in cup equivalents	Includes raw, cooked, canned, and fried vegetables; tomatoes and tomato-based sauces; legumes (beans and peas); 100% vegetable juices
rmhei2015_green_and_bean	Greens and Beans Servings in cup equivalents	Includes raw, cooked, and canned dark-green vegetables; legumes (beans and peas)
rmhei2015_wholegrain	Whole Grain Servings in ounce equivalents	See page A10.34
rmhei2015_dairy	Dairy Servings in cup equivalents	Includes milk, milk-based drinks, and milk-based dry powders; cheese; yogurt; ice cream and other dairy-based frozen desserts; pudding.  Plant-based dairy alternative products including plant-based milks and cheese are not included.
rmhei2015_totalprotein	Total Protein Servings in ounce equivalents	Includes meat, poultry, fish and seafood, game, cold cuts and sausage; eggs and egg substitutes; nuts and seeds; nut and seed butters; plant-based meat alternatives; legumes (beans and peas); pork rinds
rmhei2015_seaplantprotein	Seafood and Plant Protein Servings in ounce equivalents	Includes fish and seafood; nuts and seeds; nut and seed butters; plant-based meat alternatives; legumes (beans and peas)
rmhei2015_totalunsatfats	Total Polyunsaturated Fatty Acids (PUFA) (g) and Total Monounsaturated Fatty Acids (MUFA) (g)	
rmhei2015_totalsatfats	Total Saturated Fatty Acids (SFA) (g)	
rmhei2015_refinedgrain	Refined Grains in ounce equivalents	See page A10.34
rmhei2015_sodium	Sodium (g)	
rmhei2015_addedsugars	Kcals from Added Sugars (by Total Sugars)	
rmhei2015_satfatkcal	Kcals from Saturated Fats	
rmhei2015_kcal	Energy (kcal)	