

ReadMe for WHI's Healthy Eating Index (HEI)-2005 component and total scores computed from the food-frequency questionnaire (FFQ)

Data.

The tab delimited file, *f60_hei_2005_inv.dat*, includes participant common ID (*ID*), visit year (*F60VY*; 0 == baseline; 1 to 10 == annual visits), exclusion consideration status (*STATUS*; 1 == energy < 600 kcal consider excluding; 2 == energy > 5000 kcal consider excluding; 3 == energy intake is plausible), HEI-2005 component scores and total score (*HEI2005*; sum of its twelve components ranges from 0 to 100). Higher scores indicate closer conformance to the 2005 dietary guidance for Americans. HEI scores, computed from FFQs completed closest to a participant's expected annual visit ([WHI Data Preparation and Use](#)), corresponding FFQ data ([MPEDs](#), [nutrients](#) or [items](#)) and scoring algorithm are described below, and apply only to [FFQs](#) collected during the [WHI study phase \(1993 to 2005\)](#). Available SAS-code and references, listed below, provide further details and motivation.

Computational note: Intake of legumes count towards meeting the standard for the *Meat and Beans* component first. Once met, any additional legumes count towards the components *Total Vegetables* and *Dark Green and Orange Vegetables and Legumes*.

Description of HEI-2005 scores.

Component	HEI-2005 scores	MPED/FFQ variables	Max score ¹	Standard: max score per 1000 kcal	Standard: min score (zero) per 1000 kcal
Adequacy:					
Total Fruit ²	<i>HEI1</i>	<i>F_TOTAL</i>	5	≥0.8 cup equiv.	No Fruit
Whole Fruit	<i>HEI2</i>	<i>F_NJ_TOTAL</i>	5	≥0.4 cup equiv.	No Whole Fruit
Total Vegetables ³	<i>HEI3</i>	<i>V_TOTAL</i> ; may contain <i>LEGUMES</i> ³	5	≥1.1 cup equiv.	No Vegetables or legumes (if applicable)
Dark Green and Orange Vegetables and Legumes ³	<i>HEI4</i>	<i>V_ORANGE</i> + <i>V_DRKGR</i> ; may contain <i>LEGUMES</i> ³	5	≥0.4 cup equiv.	No Dark Green or Orange Vegetables or legumes (if applicable)
Total Grains	<i>HEI5</i>	<i>G_TOTAL</i>	5	≥3.0 oz equiv.	No Grains
Whole Grains	<i>HEI6</i>	<i>G_WHL</i>	5	≥1.5 oz equiv.	No Whole Grains
Milk ⁴	<i>HEI7</i>	<i>D_TOTAL</i> + (<i>D_MILKISM</i> - <i>D_MILK</i>)	10	≥1.3 cup equiv.	No milk
Meat and Beans ^{3,5}	<i>HEI8</i>	<i>M_MPF</i> + <i>M_EGG</i> + <i>M_NUTSD</i> +	10	≥2.5 oz equiv.	No meat and beans

		<i>M_SOYESM</i> ; may contain <i>LEGUMES</i> ³			
Oils	<i>HEI9</i>	<i>DISCFAT_OIL</i>	10	≥12 grams equiv.	No Oil
Moderation:					
Saturated Fat	<i>HEI10</i>	<i>F60SFA</i>	10	≤7% of energy	≥15% of energy
Sodium ⁶	<i>HEI11</i>	<i>F60SODUM</i>	10	≤0.7 gram	≥2.0 grams
Calories from Solid Fats, Alcoholic Beverages, and Added Sugars	<i>HEI12</i>	<i>ADD_SUGDISC, FAT_SOL, BEER, WINE, LIQUOR</i>	20	≤20% of energy	≥50% of energy

¹ Intakes between the minimum and maximum standards are scored proportionately, except saturated fat and sodium. Saturated Fat and Sodium get a score of 8 for the intake levels that reflect the 2005 Dietary Guidelines, <10% of calories from saturated fat and 1.1 grams of sodium/1,000 kcal, respectively.

² Includes 100% juice.

³ See computational note (above) on allocating legumes. Consult references and SAS-code for further details.

⁴ Total dairy including soy beverages.

⁵ Includes soybean products other than beverages.

⁶ The sodium nutrient data is reliant on the WHI FFQ, which did not target dietary sodium assessment and did not assess all sources of sodium. If interested in sodium as a primary exposure, the FFQ sodium should be biomarker-calibrated (5). However, calibrating within a dietary quality index does not apply.

SAS-code.

For additional information, please refer to these SAS programs that processed FFQ-derived MPED data and computed HEI-2005 scores:

(i) *f60_hei_2005_pseudoCode_inv.sas*

(ii) *f60_hei_2005_beanspeas_allocation_macro.sas*

(iii) *f60_hei_2005_score_macro.sas*

References.

(1) Guenther PM, Reedy J, Krebs-Smith SM. Development of the Healthy Eating Index–2005. *J Am Diet Assoc* 2008 Nov;108(11):1896-901.

(2) Guenther PM, Reedy J, Krebs-Smith SM, Reeve BB. Evaluation of the Healthy Eating Index–2005. *J Am Diet Assoc* 2008 Nov;108(11):1854-64.

(3) HEI–2005 Fact Sheet (Guenther PM, Krebs-Smith SM, Reedy J, Britten P, Juan WY, Lino M, Carlson A, Hiza HA, Basiotis PP. Healthy Eating Index–2005. CNPP Fact Sheet No. 1, Available at

http://www.cnpp.usda.gov/sites/default/files/healthy_eating_index/healthyeatingindex2005factsheet.pdf)

(4) Thompson TG, Veneman AM. Dietary guidelines for Americans 2005. United States Department of Health and Human Services and United States Department of Agriculture. 2005.

(5) Huang Y, Van Horn L, Tinker LF, Neuhaus ML, Carbone L, Mossavar-Rahmani Y, Thomas F, Prentice RL. Measurement error corrected sodium and potassium intake estimation using 24-hour urinary excretion. *Hypertension*. 2014 Feb;63(2):238-44.