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Updating USDA's Key Foods List for What We Eat in America, NHANES 2011–12

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Abstract

The Nutrient Data Laboratory (NDL) of the U.S. Department of Agriculture (USDA) uses the Key Foods approach to select foods for nutrient analyses, allowing NDL to concentrate analytical resources on foods that contribute significant amounts of nutrients of public health interest to the diet. The Key Foods approach uses food composition data from the USDA National Nutrient Database for Standard Reference (SR26) for 14 nutrients of public health significance identified in the 2010 Dietary Guidelines for Americans, intake data from NHANES, What We Eat in America (WWEIA) 2011–12, and the USDA Food and Nutrient Database for Dietary Studies (FNDDS 2011–2012) to connect food composition with consumption data. For each food, NDL multiplies the nutrient content by the grams consumed. NDL then ranks all Key Foods for each nutrient and divides the foods into quartiles. The current Key Foods list contains 576 food items, similar to the list generated from NHANES-WWEIA 2007–08, although the number of foods per quartile and rankings of some foods have changed slightly. Key Foods help NDL provide current, representative data for researchers, policy makers, the food industry, and consumers. This article describes the Key Foods list that NDL developed using data from SR26 and 2011-12 consumption data from NHANES-WWEIA.

Peer-review under responsibility of the National Nutrient Databank Steering Committee

Keywords: food composition; food analysis; sodium

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1. Introduction

The Nutrient Data Laboratory (NDL) of the U.S. Department of Agriculture (USDA) has maintained food composition databases and tables for over 120 years, since Dr. Atwater published his pioneering manuscript, "Investigations upon the Chemistry and Economy of Foods," in 1892[1]. Today, the latest version of the USDA National Nutrient Database for Standard Reference (SR), Release 27[2], contains data on over 8,600 food items for up to 150 nutrient components.

Keeping the SR database up to date is an ongoing effort. Reanalyzing all 8,600 food items each year would require much more resources than are available. Current resources allow for the sampling and analysis of 75 to 100 foods per year, so it would take nearly 100 years to analyze all of the foods in the database. Clearly, such a complete analysis is not practical, and a method is needed to prioritize foods for sampling and analysis.

In 1987, NDL developed the Key Foods approach[3] using food composition and food consumption data from the Continuing Survey of Food Intakes by Individuals (CSFII) 1985–86 and, later, the 1987–88 Nationwide Food Consumption Survey. The food composition data used to create the first Key Foods list came from data derived from Release 5 of SR and other unpublished data available to NDL. NDL updated the Key Foods list with each new release of food consumption data, starting with the CSFII in 1989-91, 1994-96, and 1998. More recently, NDL has used data from the What We Eat in America (WWEIA) component of NHANES from 2001–02, 2003–04, 2005–06, 2007–08, and 2009–10 to create a series of Key Foods lists.

In 1997, NDL collaborated with the National Heart Lung and Blood Institute of the National Institutes of Health to improve the quantity and quality of data in SR. This project, the National Food and Nutrient Analysis Program (NFNAP), generates high-quality analytical nutrient data on foods that are commonly consumed in the United States. NDL has used the Key Foods approach to identify foods and nutrients for sampling and analysis and has sampled and analyzed nearly 2,000 food items since the NFNAP began. As a result, nearly 20% of the nutrient values in SR27 contain data from NFNAP. NDL uses these analytical data to calculate numerous other values for which analytical data are not available. For example, when a nutrient profile is needed for a cooked product, and data is only available for the raw item, values can be calculated from the raw values by the use of appropriate yield and retention factors.

This article describes the process used to generate the Key Foods list that NDL developed using food composition data from Release 26 of SR[4] and the 2011–12 WWEIA/NHANES consumption data[5].

2. Methods

Haytowitz et al. described the procedure that NDL used to develop the earlier Key Foods lists[6, 7] with data from the CSFII. More recently data from the What We Eat in America (WWEIA) component of the National Health and Nutrition Examination Survey (NHANES) has been used[8]. For each survey cycle, NDL provides the USDA Food Surveys Research Group (FSRG) with a subset of SR, which currently contains approximately 3,200 food items. The Food Surveys Research Group uses these data to build the Food and Nutrient Database for Dietary Studies (FNDDS), a database of values for certain nutrients in foods and beverages that WWEIA/NHANES respondents report consuming.

As the first step in developing the Key Foods list (Figure 1), NDL uses the list of ingredients and their amounts in the ''FNDDSSRLinks" file of the FNDDS[5]. It contains those components needed to develop a nutrient profile for each food item and can be either a single item, such as a raw fruit or vegetable or a complex multi-ingredient food, such as a casserole or an ethnic dish. Perloff first described the development of an early version of this file in 1985[9]. In this file, ingredient amounts are often expressed in common household units, such as cups or tablespoons. However, for calculations of nutrient values, all ingredient amounts must be expressed as the percentage of the total recipe made up by that ingredient. So a food item which contains a list of ingredients in terms of common household units, e.g. cups, tablespoons, and pieces with their respective weights, are converted to percents. In the ''FNDDSSRLinks" file,