DINE Relational Database: A Protocol for Imputing Values

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The DINE Relational Database (DRD) was designed to facilitate collecting, storing, imputing, and printing food composition data for use in consumer-based research and development projects. Each year, the food industry introduces new food products, and other food products are removed from the market or reformulated. Periodically, the USDA publishes and revises nutrient handbooks. DRD reduced the labor intensity, increased the accuracy, and improved the process of developing and maintaining an up-to-date nutrient database containing brand-name, processed and prepared foods; fast foods; and single food items. DRD uses "records" to store macronutrients, micronutrients, and constituents supplied by the USDA or food companies for a food and uses "worksheets" for calculating the unknown nutrient values. DRD also tracks certain data not usually provided, e.g. amount of protein in a food from animal and plant sources. The fundamental principle behind the DRD is that every food is made up of a list of one or more ingredients. By using "markers", a nutritionist can ascertain the mass of each ingredient in a food. A Source File was created which stores the values for each major ingredient. The ingredients are then entered and unknown nutrient values for the food are computed by the DRD. The DRD verifies the accuracy of computed values by providing a system of auto-checks. The organization of the Macintosh-based 4th dimension database shell and the protocol for imputing values including the auto-check system will be presented.