Integrating Foods and Dietary Supplements into a Single Composition Table

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Overview

- Cancer Research Center of Hawai`i
- Previous Databases
- Advantages of the new database
- Challenges of the new database
- Significance

Objective

To develop a single table to track nutrient and non-nutrient composition of foods and dietary supplements

Cancer Research Center of Hawai`i

- Diet and Cancer

- Multiethnic Cohort Study
  - Hawaii & Los Angeles
  - 215,000 participants
  - Self-Administered Quantitative Questionnaire
    - Food Frequency
    - Supplement Use

Previous Databases

- Food Composition Table
  - 2372 Foods
    - Ethnic foods
    - 840 recipes included
  - 120 nutrients
    - Isoflavonoids
    - Flavonoids
    - Conjugated linoleic acid
    - Glycemic load

Previous Databases

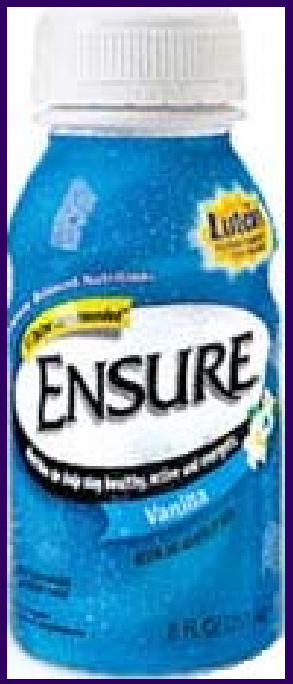
Supplement Composition Table

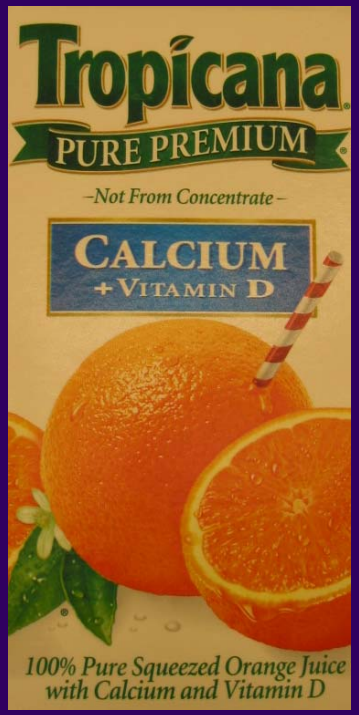
- 3303 dietary supplements, includes:
  - 2100 multivitamin & multimineral products
  - 335 single nutrient products
  - 218 herbal/non-nutrient products
- 120 nutrients
- 91 non-nutrients and herbs
  - Glucosamine
  - Spirulina

What are the advantages of combining these two tables?

Advantages

- Eliminates the need to distinguish between a supplement and a food





Advantages

- Facilitates analysis of total nutrient intake
- Eases analysis of added nutrients vs. non-added nutrients

Advantages

- Provides the ability to create recipes for
  - Foods with added vitamins, minerals, herbal products and/or food extracts
  - Supplements which are combinations of multiple tablets or ingredients

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Minute Maid Orange Juice "Kids +"

Ingredients: Water, Concentrated Orange Juice, less than 2% of: Tricalcium Phosphate and Calcium Lactate, Vitamin E, Beta Carotene, Vitamin D3.

Nutrition Facts

Serving Size 8 fl oz (240 mL)
Servings Per Container 8

Amount Per Serving	
Calories 110	Calories from Fat 0
	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0 mg	0%
Sodium 20 mg	1%
Potassium 450 mg	13%
Total Carbohydrate 27g	9%
Sugars 24g	
Protein 2g Not a significant source of protein	
Vitamin A 20% (100% as beta carotene)	
Vitamin C 120% • Calcium 35%	
Vitamin D 25% • Vitamin E 20%	
Thiamin {Vitamin B_1} 10%	
Niacin 2% • Vitamin B_6 4%	
Folate 15% • Magnesium 6%	

Not a significant source of dietary fiber and iron.

Per 1 cup serving:	
Orange Juice	240 g
Calcium	350 mg
Beta Carotene	1000 IU
Vitamin E	6 IU
Vitamin D	100 IU

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- Provides the ability to create recipes for
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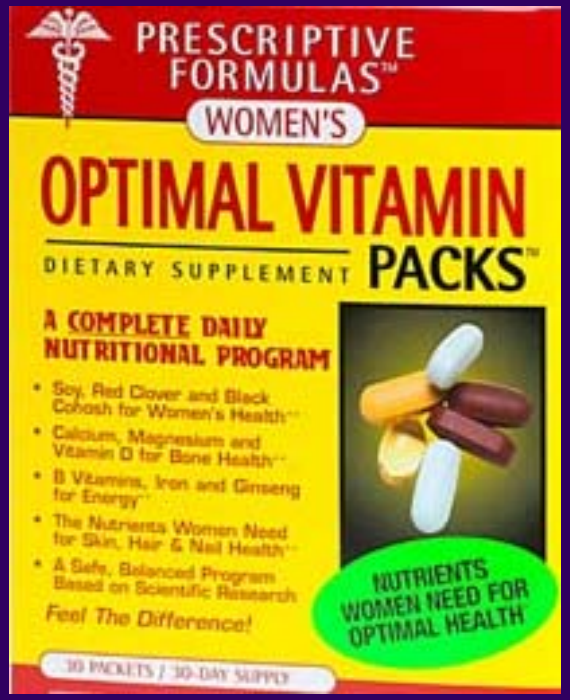
“Optimal Vitamin Packs”



Each Packet Contains:	
1 Caplet	Vitamin C
1 Caplet	Multivitamin
2 Caplets	Calcium & Magnesium
1 Caplet	Multimineral
1 Softgel	Vitamin E

Advantages

- Permits quantification of nutrient intake from herbal supplements and food extracts often used as supplements (e.g., cranberry fruit, ginger, ginseng)

Cranberry Fruit Supplement

Supplement Facts	
Serving Size: 4 capsules	
	Amount per serving
Calories	5
Total Carbohydrate	1 g
Dietary Fiber	1 g
Cranberry (fruit)	1.7 g

Cranberry, dried

(per 1.7 grams)

Energy	5.2	kcal
Carbohydrate	1.40	g
Fiber	0.10	g
Potassium	0.68	mg
Phosphorous	0.14	mg

Source: USDA Standard Reference 16-1

What are the challenges of combining these two tables?

Challenges

- Differing units used for nutrients in foods and supplements
  - Vitamin A: mg RAE vs. IU

Challenges

- Recipes
  - Foods quantified per 100 grams
  - Supplements quantified per dose
  - Varying types of supplements
    (e.g., pill, powder, liquid)
  - Multiple forms of supplement used in a single product
    (e.g., Tricalcium Phosphate and Calcium Lactate)

Challenges

- Limited by supplement information provided by manufacturer
- Amounts of some supplement components not available
  - Proprietary blends in supplements
  - Binary indicators used

Supplement Facts

Serving Size 1 Capsule

	Amount Per Capsule	% Daily Value
Proprietary Blend of:	373 mg	
Grape Skin Extract		†
Grape Seed Extract		†
Proteases (Bromelain, Fungal)		†
Ginkgo Biloba Extract (Leaves)		†
Bilberry Extract (Berry)		†
Quercetin Powder		†

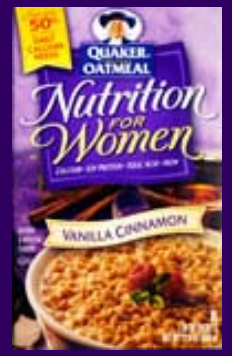
† Daily Value not established.

Other ingredients: Gelatin (capsule), Rice Flour.

Challenges

Keeping abreast of product availability

- Supplement Composition Table
  - 67% currently available
  - 33% discontinued (e.g., formula change, product no longer available)
- Foods



Significance

- Combining the food composition table and the supplement composition table increases the quality of both databases, allowing better estimations of total dietary intake

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