

# 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

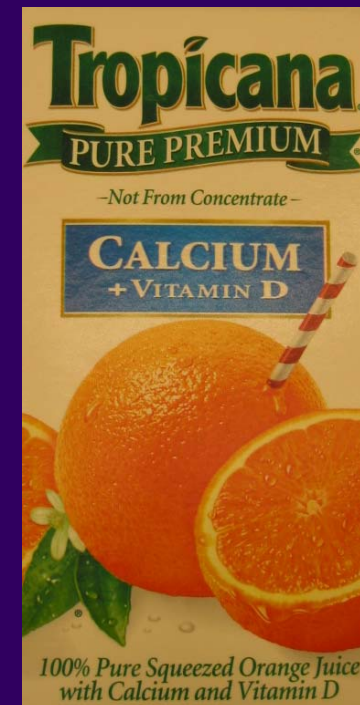
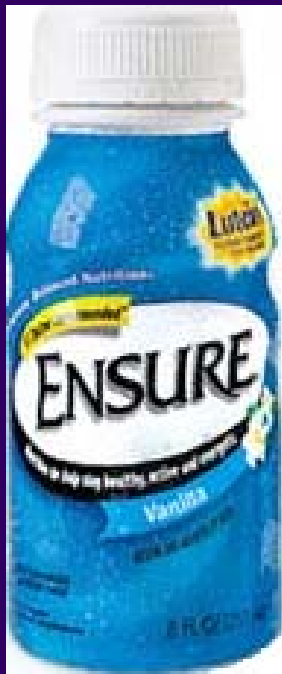
## Supplement Composition Table

- 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<sub>1</sub>} 10%

Niacin 2% • Vitamin B<sub>6</sub> 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

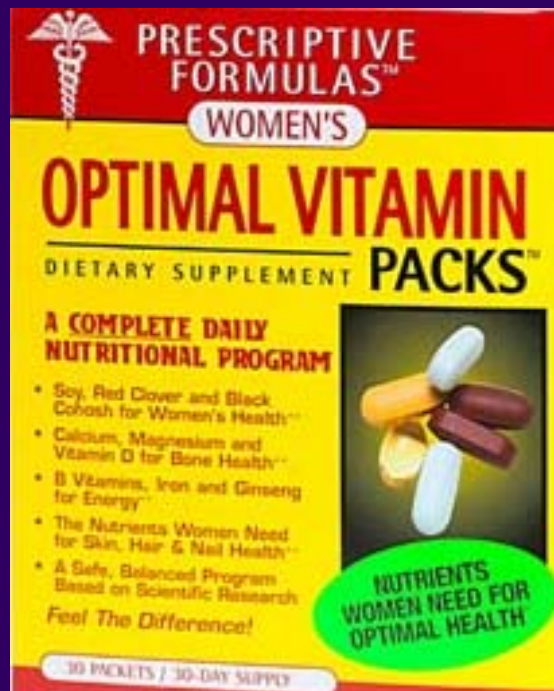
Vitamin E    6 IU

Vitamin D    100 IU

# Advantages

- Provides the ability to create recipes for
  - Foods with added vitamins, minerals, herbal products and/or food extracts
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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

# Acknowledgements

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