

Estimating Iodine Intake Status in the United States, 2003-2008

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Background

- Naturally occurring iodine
- Iodine fortified salt
- Increasing usage of processed foods and concerns on reducing sodium consumption
- Nutrient inadequacy in pregnant women
- Nutrient in excess for children



Food and Drug Administration

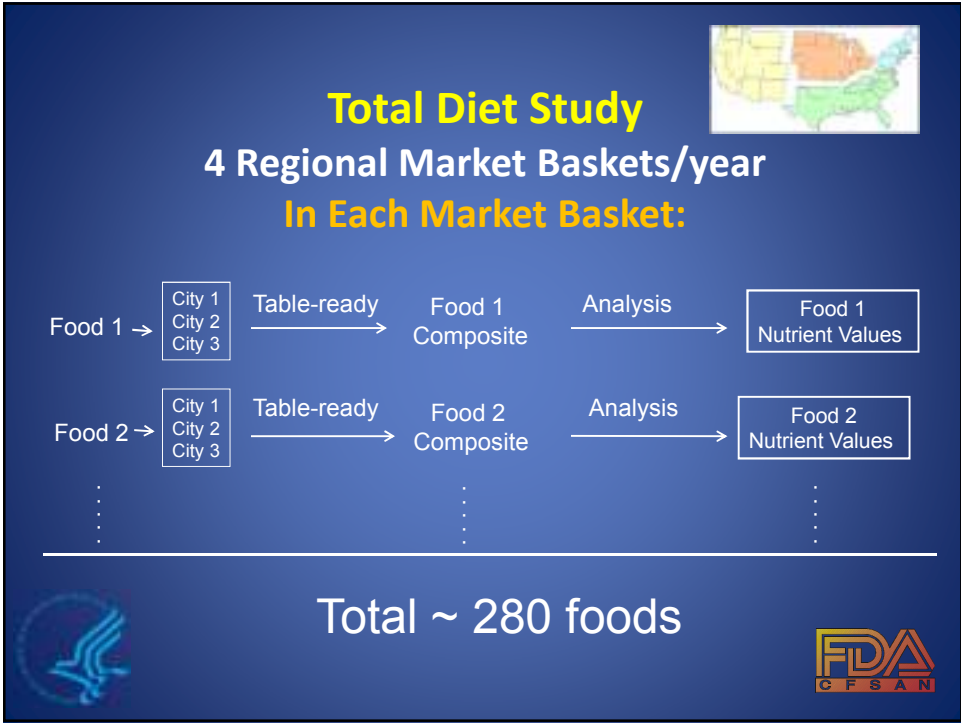
- Mission
 - The 1990 Nutrition Labeling and Education Act (NLEA)
 - A food is considered to be misbranded unless its label or labeling bears nutrition labeling
 - Certain nutrients and food components are to be included in nutrition labeling to assist consumers in maintaining healthy dietary practice



Objectives


- To estimate the prevalence of iodine inadequacy based on usual iodine intake distributions from food and from total (food plus dietary supplements) for 13 age-gender groups in the U.S. population aged 4 years and older and for pregnant women.
- To identify the main food sources of iodine.





Dietary Intake Data

- **Dietary Intake Data**
 - What We Eat in America, National Health and Nutrition Examination Surveys (WWEIA, NHANES)
 - Stratified, multi-stage, probability sampling
 - Combined 2003-2004, 2005-2006, 2007-2008
 - Reliable day 1 and day 2



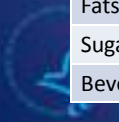
Subjects & Data Analysis

- **Subjects:**
 - Age 4 years and older (n=23,165)
 - 13 age-gender groups
 - M+F: 4-8
 - M/F: 9-13, 14-18, 19-30, 31-50, 51-70, 71+
 - Pregnant women (n=679)
- **Analytical method:**
 - Usual intake distributions
 - Food
 - Total (food + daily dietary supplement)
 - National Cancer Institute
 - Prevalence of nutrient inadequacy
 - Weighted Estimated Average Requirement (weighted EAR)
 - Estimated Average Requirement (EAR)



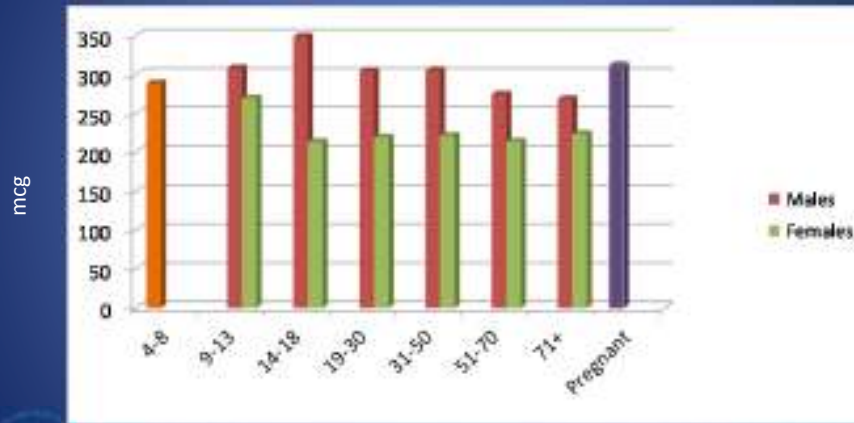
Iodine Food Sources

Main food groups	Sub-food groups
Milk and Cheese	Milk, Cream, Milk Desserts, Cheeses
Meat/poultry/ fish, non-meat	Beef, Pork, Lamb, Poultry, Organs, Fish/Shellfish, Non-Meat
Eggs	
Legumes	
Nuts and Seeds, nut butters	Nuts/Nut butters, Seeds
Grain and grain mixtures	Yeast Breads, Quick Breads, Cakes, Crackers, Pancakes, Pastas, Cereals, Mixtures/Frozen Meals/Soups
Fruits	Citrus, Other, Fruit Juices
Vegetables	Potatoes, Dark-Green, Deep-Yellow, Tomatoes, Others
Fats and oils	Fats, Oils, Salad Dressing
Sugars and sweets	
Beverages	Water, Carbonated, Fruit Drinks, Alcoholic



Results-

Mean Iodine Intake from Food by Age-Gender Groups
WWEIA-NHANES 2003-2008, Day 1



Age-Gender Group



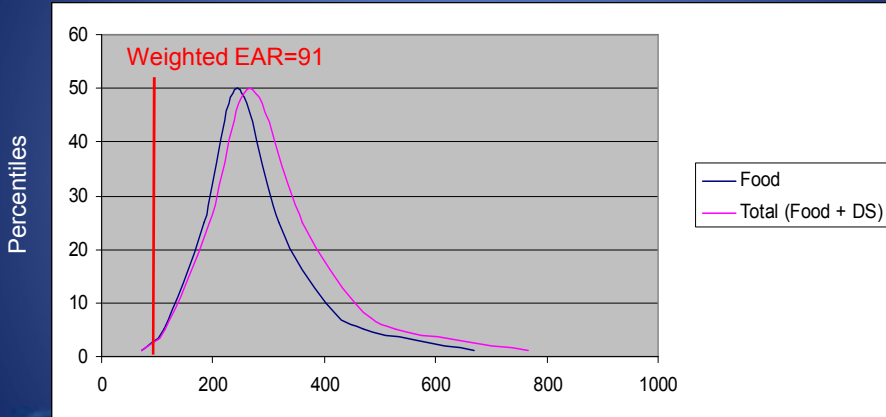
Mean Iodine Intake from Food and Dietary Supplement
by Age-Gender Groups
WWEIA-NHANES 2003-2008, Day 1



Age-Gender Group



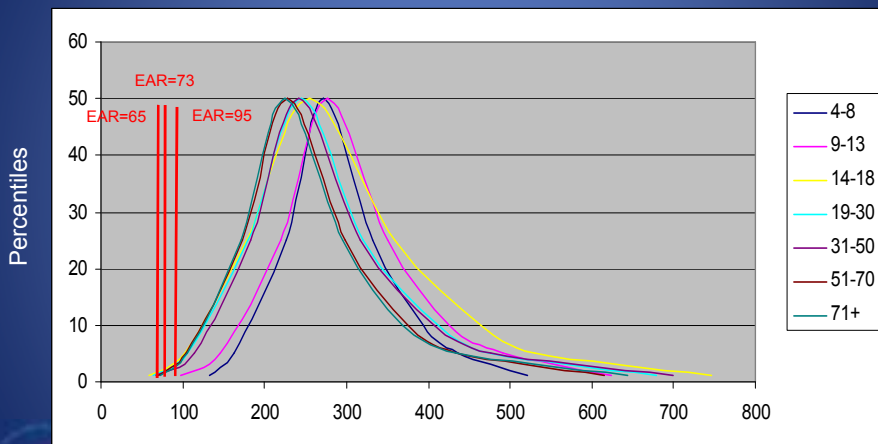
Iodine Usual Intake Distributions Age 4 and older



mcg



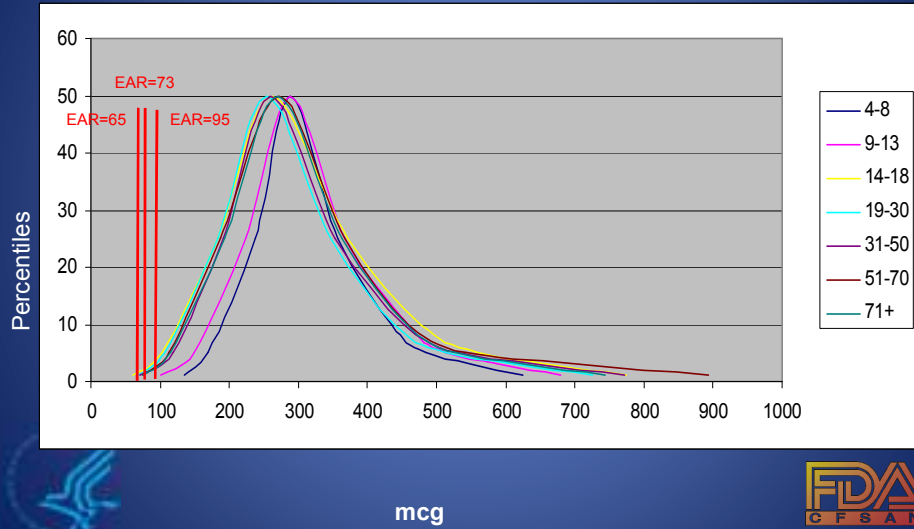
Iodine Usual Intake Distributions from Food by Age Groups



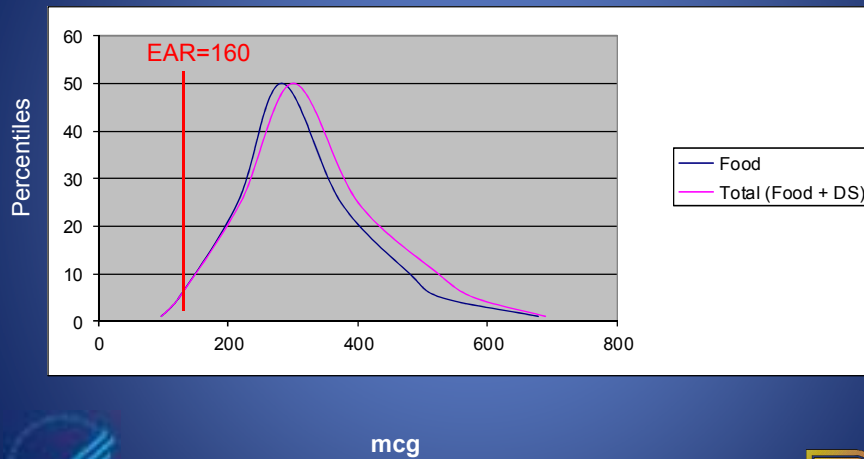
mcg



Iodine Usual Intake Distributions from Food plus Dietary Supplement by Age Groups



Iodine Usual Intake Distributions Pregnant Women



Food Sources of Iodine

Food Group	Percent Contribution
Milk and Cheese	46.3
Meat, Poultry and Fish/Shellfish	11.1
Eggs	5.3
Legumes	0.4
Nuts and Seeds, Nut butters	0.1
Grains and Grain Mixtures	27.6
Fruits	1.6
Vegetables	4.1
Fats and Oils	0.3
Sugars and Sweets	1.4
Beverages	1.8



Summary

- The mean daily intakes of iodine from food for the 13 age-gender groups ranged from 214 to 349 mcg with the highest found among males, ages 14-18 years
- The mean intake of iodine from food by pregnant women was 312 mcg.
- The prevalence of inadequate iodine intake from food was 2.3% and 8.5% among the U.S. population, aged 4 years and older and pregnant women, respectively.



Summary (cont.)

- The prevalence of iodine inadequacy did not change much when dietary supplements were included.
- Milk and cheese products, bread, meat/poultry/fish, and eggs were the top food sources for both aged 4 years and older and pregnant women.
- Milk and milk drinks providing about 36% of total iodine from food.



Conclusions

- There is a low prevalence of iodine inadequacy for the U.S. population, including pregnant women.
- Efforts in monitoring intake and strengthening food composition data are warranted.

