


DIGITAL FOOD PHOTOGRAPHY

Dietary surveillance and beyond

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Measuring Exposure



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Problem: Accurate Portion Size Estimation

1. Interviewer-aided dietary recall:

interviewer-aided probing and portion size selection

2. Self-administered dietary recall:

automated probing and **visually appealing** portion size depiction

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Potential Solution

- Take advantage of available technologies



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Evolution



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Photography System Components



1. 2-Nikon F80 cameras with 28-125 mm zoom lenses and AC power supplies
2. 2-Nikon Electronic cable releases
3. 2-Windows driven PCs, one per camera with mouse, keyboard and monitor cable
4. 2-USB cables to connect each camera to its PC
5. 2-Electronic flash sync cables
6. 1-15" LCD Monitor with monitor cable
7. 1-Computer monitor switcher
8. 2-Nikon Camera Control Pro software for direct computer control and capture
9. 1-Kinex viewfinder projector
10. Comet studio lighting kit with 2 flash heads and stands
11. Large soft light box
12. Reflective umbrella
13. Backdrop stand, paper backdrop, diffusion fabric, light stands and white mount board
14. Chroma-key blue paint
15. Heavy tripod with attached second mount
16. Kitchen preparation table

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Food Photography System (FPS) Requirements

- ❖ Shoot two different angles of view
- ❖ Shoot photos of comparable size
- ❖ Shoot portion size series easily
- ❖ Simple to operate
- ❖ “On the job” quality assurance and safe storing

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Photography System Components



2 Camera angles

Light box and Chroma
Key background

1 PC per camera; 1 shared monitor

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Food Photography Process

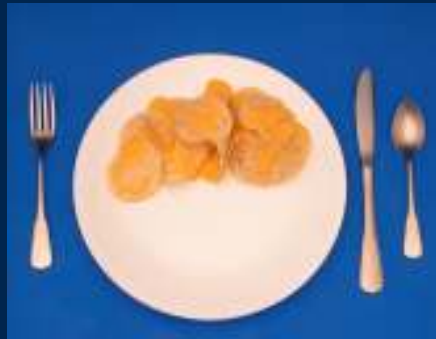


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The Big Picture

Before



After



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Portion Size Self-Assessment

Aerial view

Angled view



ASA24™
ASA24 Automated Self-administered 24-hour Recall



Portion Size in WebDASC (for 9-11 year old Danish children)

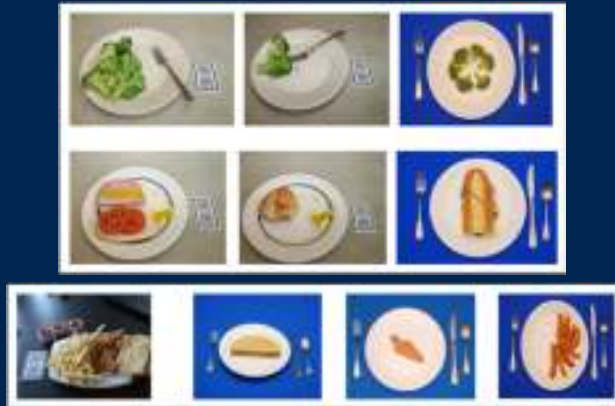
- Web-based Dietary Assessment Software developed by the National Food Institute, Technical University of Denmark, Department of Nutrition.
- WebDASC used:
 - 245 photo series from the CNRC Digital Food Photography Database
 - 75 photo series from the researcher's own making



Anja Biltoft-Jensen, Ph.D
Department of Nutrition • National Food Institute, Technical University of Denmark



Standard or reference to estimate dietary intake and assess nutrients



Corby K. Martin, Ph.D.; Assistant Professor of Health Psychology, Director, Ingestive Behavior Laboratory



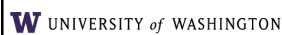
Adult Video Games

Energy Balance

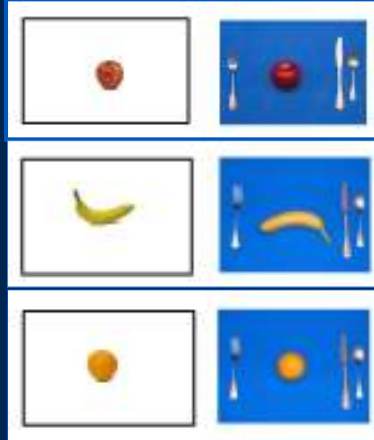
Carbohydrate Count



Lynne Harris, Ph.C. and Wanda Pratt, Ph.D., Associate Professor, Division of Biomedical and Health Informatics



Standard or reference to calibrate other food images



Amy Shirong Lu, Ph.D. Assistant Professor Media Arts and Science; Indiana University School of Informatics



Nutrition Facts learning your way to smarter eating

At-A-Glance: The Nutrition Facts Label

Understanding what the Nutrition Facts Label includes can help you make food choices that are best for your health.

- 1 - Serving Size**
This section shows how many servings are in the package, and how big the serving is. Serving sizes are given in familiar measurements, such as "cups" or "pieces."
Remember: All of the nutrition information on the label is based upon one serving of the food.
A package of food often contains more than one serving!
- 2 - Amount of Calories**
The calories listed are for one serving of the food.

Nutrition Facts	
Serving Size 1/4 Cup (1 fl oz)	
Servings Per Container 8	
Amount Per Serving	
Calories 120	Calories From Fat 25
% Daily Values*	
Total Fat 2g	3%
Saturated Fat 1.5g	3%
Trans Fat 0g	
Cholesterol 10mg	2%
Sodium 450mg	10%
Total Carbohydrate 4g	8%
Dietary Fiber 0g	0%
Sugars 4g	
Protein 10g	20%
Vitamins	
Vitamin A 0%	Vitamin C 0%
Calcium 0%	Iron 0%

*Percent Daily Values are based on a diet of other people's secrets.

<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm267499.htm>

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A picture is worth...

Gelatin Dessert with Fruit

Nutrition Facts	
Serving Size 1 cup	
Amount Per Serving	Calories from Fat 2
Calories 156	
% Daily Values*	
Total Fat 0.22g	0%
Saturated Fat 0.07g	0%
Polyunsaturated Fat 0.051g	
Monounsaturated Fat 0.017g	
Cholesterol 0mg	0%
Sodium 113mg	5%
Potassium 235mg	
Total Carbohydrate 38.71g	13%
Dietary Fiber 1.4g	6%
Sugars 32.11g	
Protein 2.59g	
Vitamin A 0%	● Vitamin C 14%
Calcium 1%	● Iron 2%

*Percent Daily Values are based on a 2000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.
Nutrition Values are based on USDA Nutrient Database SR18



- Calories**
156
- Carbs**
39
- Protein**
2.6
- Fat**
0.2

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