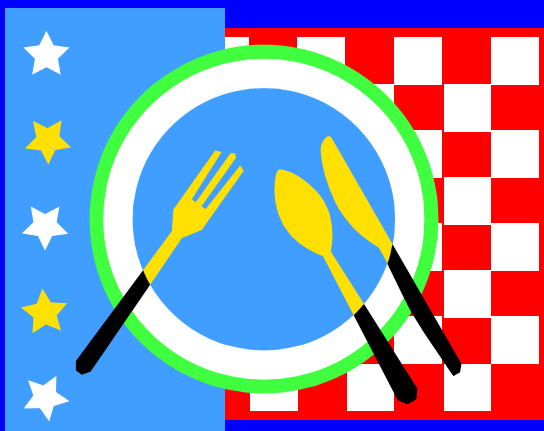


Are Super-Sized Food Portions
Leading to Super-sized
Underreporting of Dietary Intake?

Lisa Harnack

Associate Professor

Division of Epidemiology



Minnesota Heart Survey Meals Away from Home Study

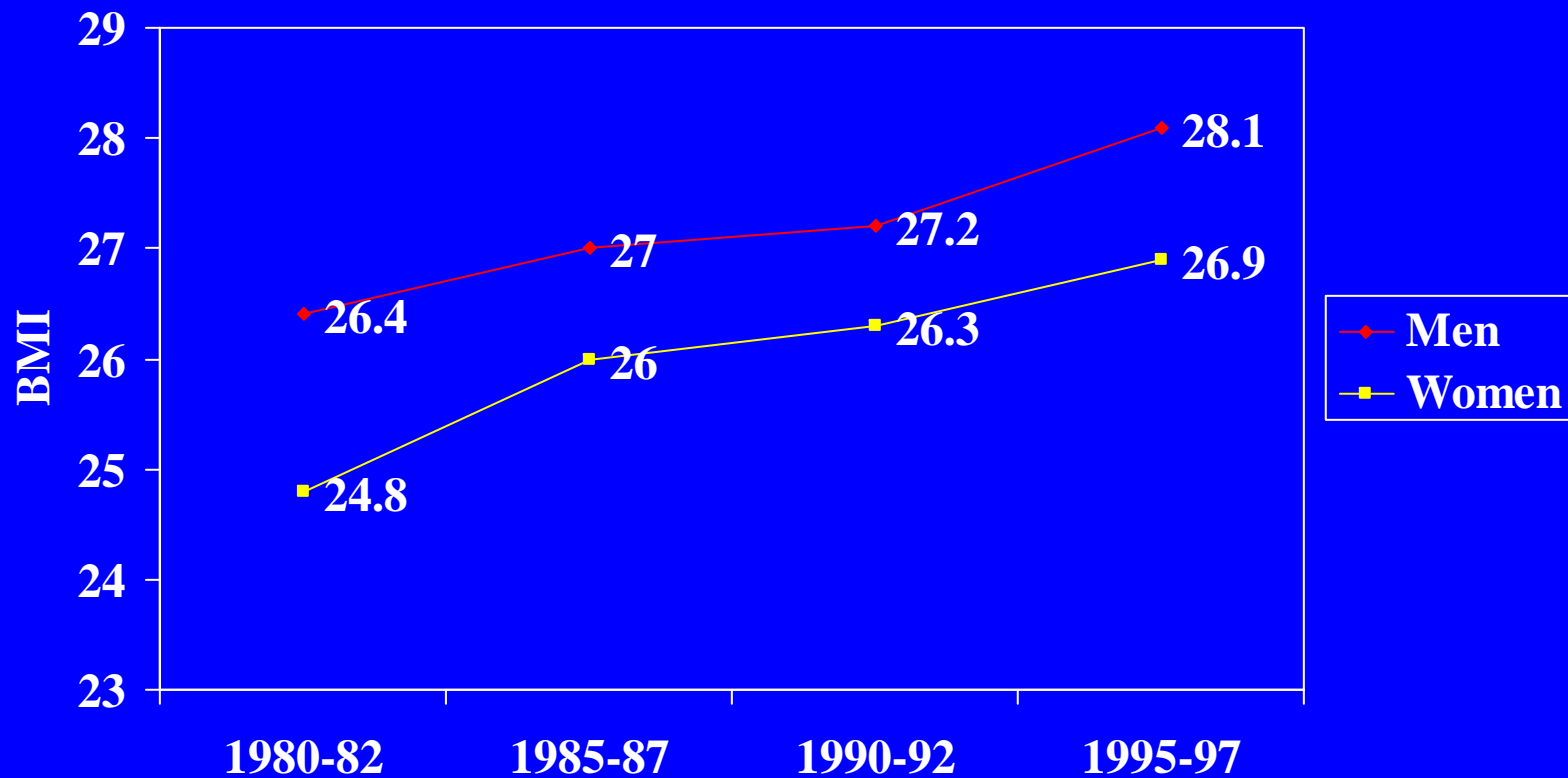
Collaborators:

Donna Arnett PhD

Russell Luepker MD, MPH

Lyn Steffen PhD, RD

Age-adjusted BMI, MHS 1980-82 to 1995-97

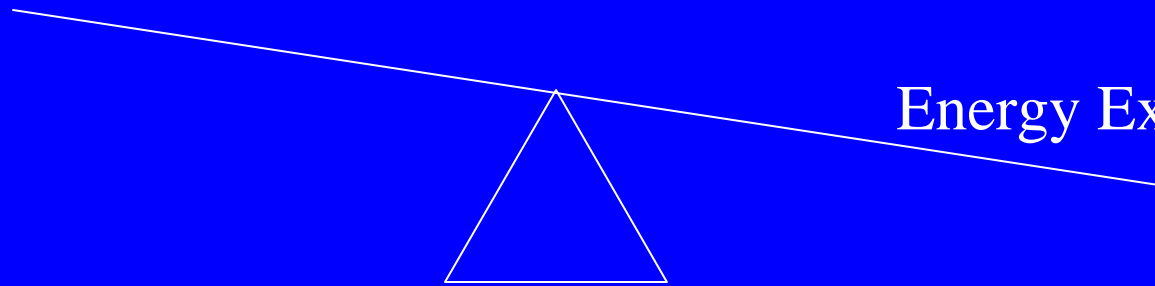


Arnett DK et al. AJE 2002

What's causing the obesity epidemic?

Etiology of Obesity

Energy Intake

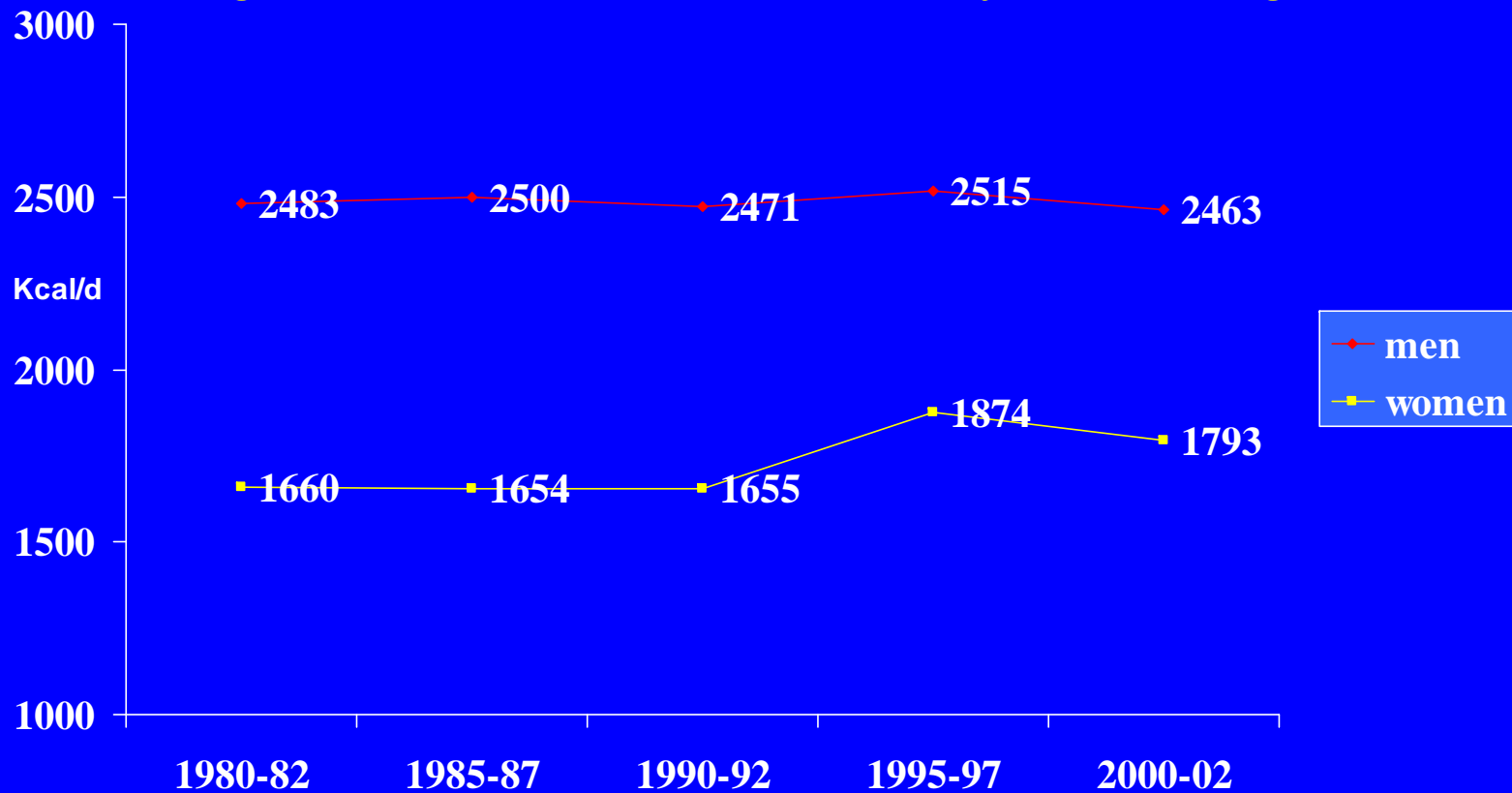


Energy Expenditure

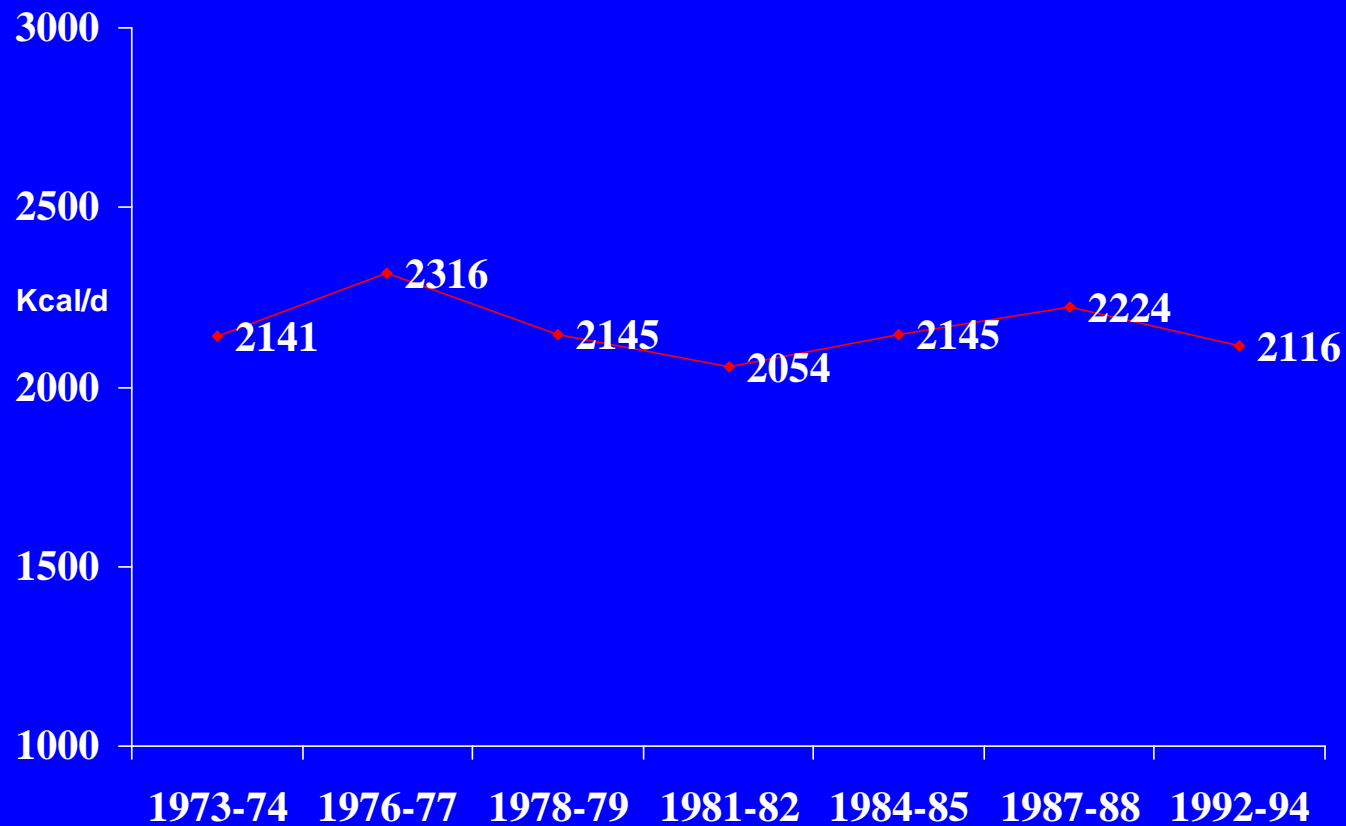
Energy Imbalance

Prentice & Jebb 1995, Heini et al. 1997, Weinsier et al. 1997

Age-adjusted Mean Energy Intake, MHS 1980-82 through 2000-02 (adults 25-74 years of age)



Mean Energy Intake of 10-year-old Children in the Bogalusa Heart Study, 1973-1994



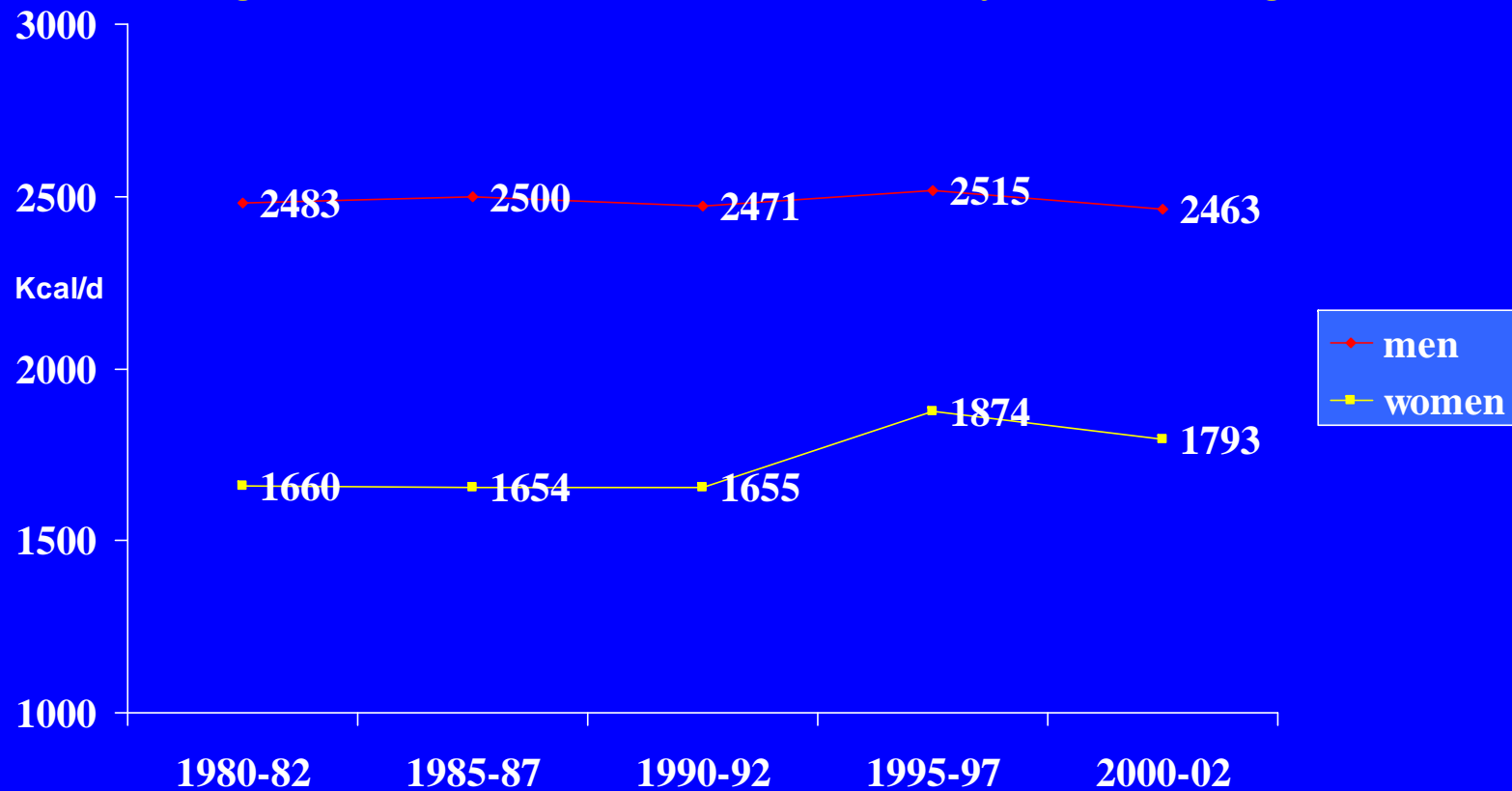
Nicklas T et al. AJE 2001

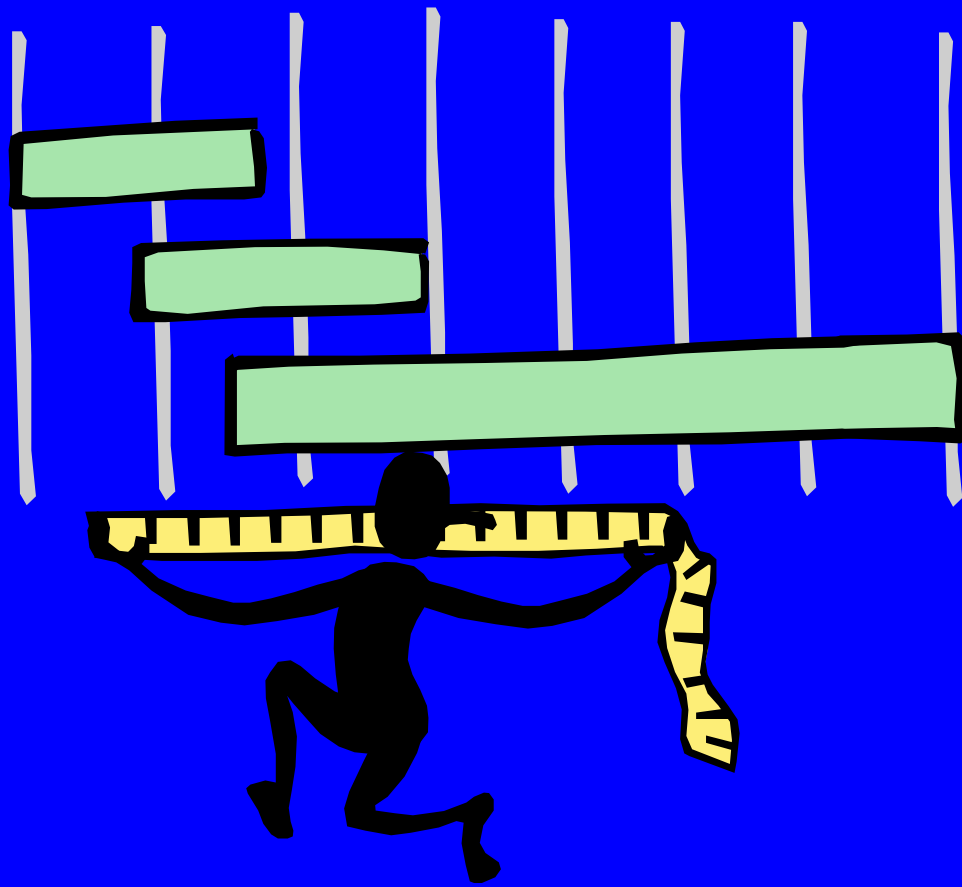
The Center For
ConsumerFreedom.com

Got fat kids? Blame the "three N's"

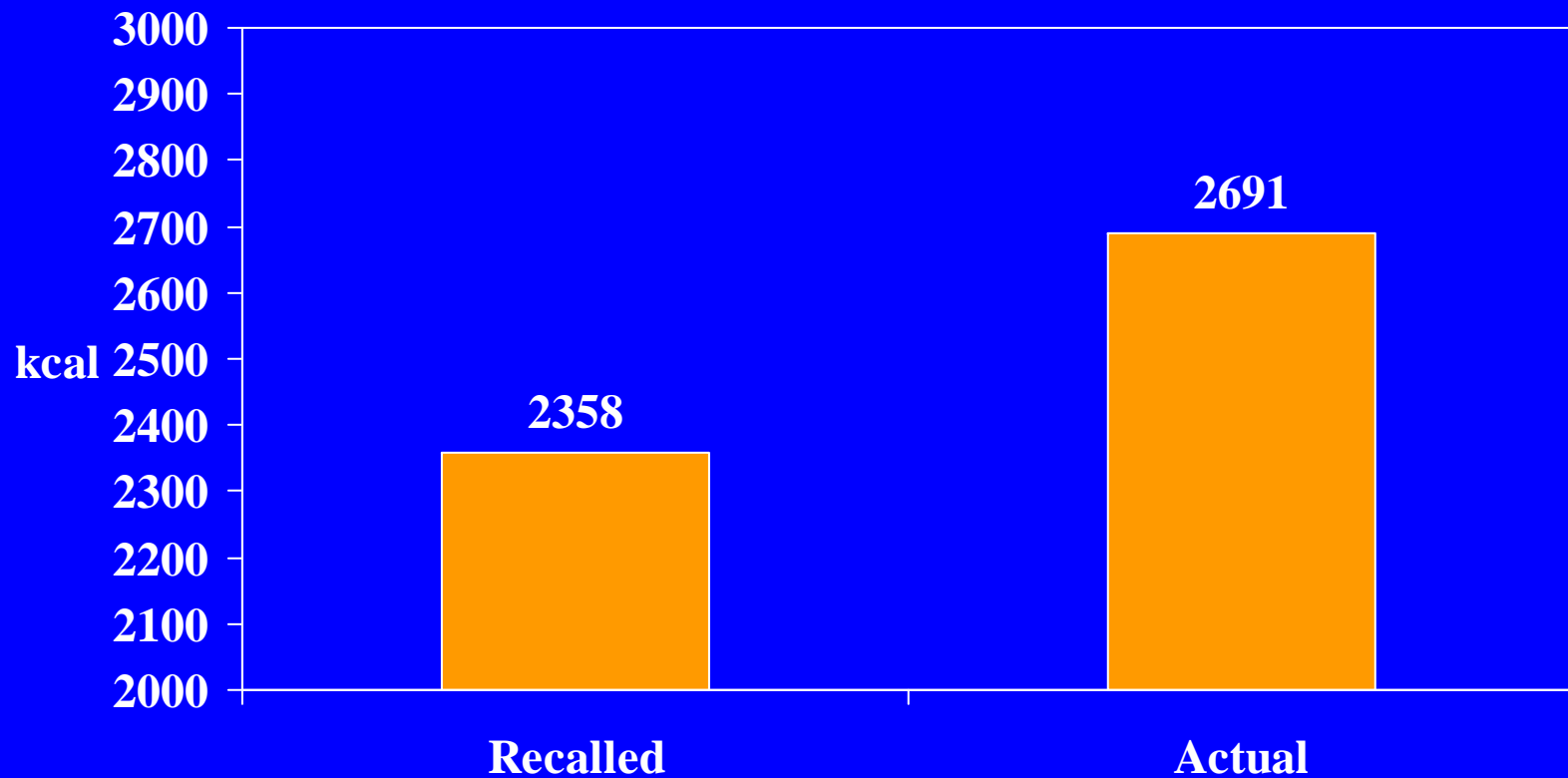
Posted On October 21, 2002

Age-adjusted Mean Energy Intake, MHS 1980-82 through 2000-02 (adults 25-74 years of age)





**Recalled energy intake compared with actual
energy intake
(Jonnalagadda, S. JADA 2000)**

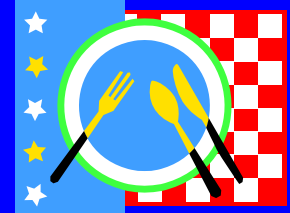


Under-reporting of intake:
A growing problem?



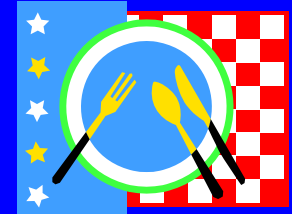
Meals Away from Home

Research Question:



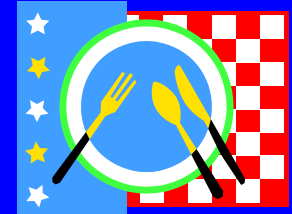
- 1.) How accurately do people estimate large food portions?
- 2.) Does the size of the food model used affect the accuracy of portion size reporting?

Study Design



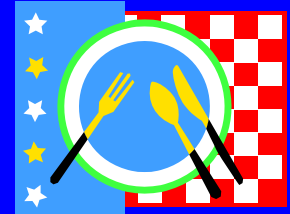
- 1.) Participants eat restaurant meal that contains large food portions
- 2.) After eating, participants estimate the portions of food eaten using two sets of food models
- 3.) Portion actually eaten is compared with the portion reported to assess accuracy

Participants (N= 45-50)



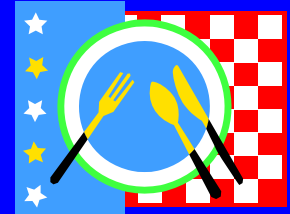
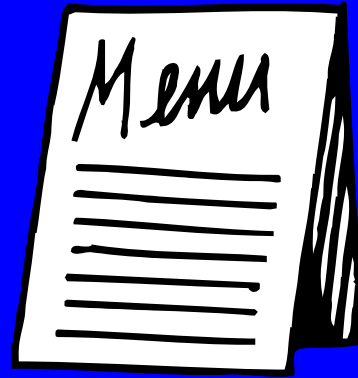
- MHS participants ≥ 25 years of age
- Significant other/ friend of MHS participant (must be ≥ 25 years of age)
- Children could not participate, but they could come along and receive a meal paid for by the study

Site of Data Collection

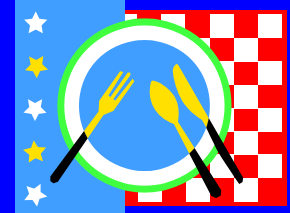


- Radisson Hotel Roseville
- Meal catered by hotel restaurant (Axel's Charhouse)

What's on the



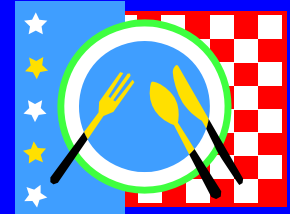
- Hamburger on bun
- French fries
- Choice of non-alcoholic beverage
- Ice cream



‘Selling’ Points

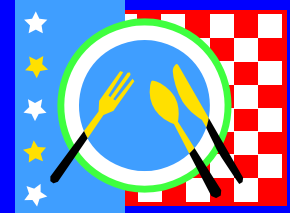
- ✓ Free meal
- ✓ \$10 Target gift certificate
- ✓ Help us learn about the public’s perception of meals eaten away from home

“What do I have to do?”



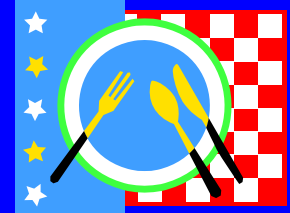
- Join us for dinner
- Complete a 10-15 minute interview after eating

Meal 'Rules'

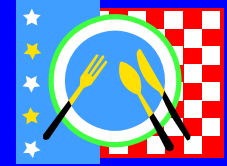


- No additions or substitutions allowed
- No food sharing/ trading
- No doggie bags allowed

Portion Size Estimation



- Administer the “Meals Away From Home Study Questionnaire”
 - Portion size estimation with food model set A or B (random order)
 - Filler questions
 - Portion size estimation with food model set A or B (random order)



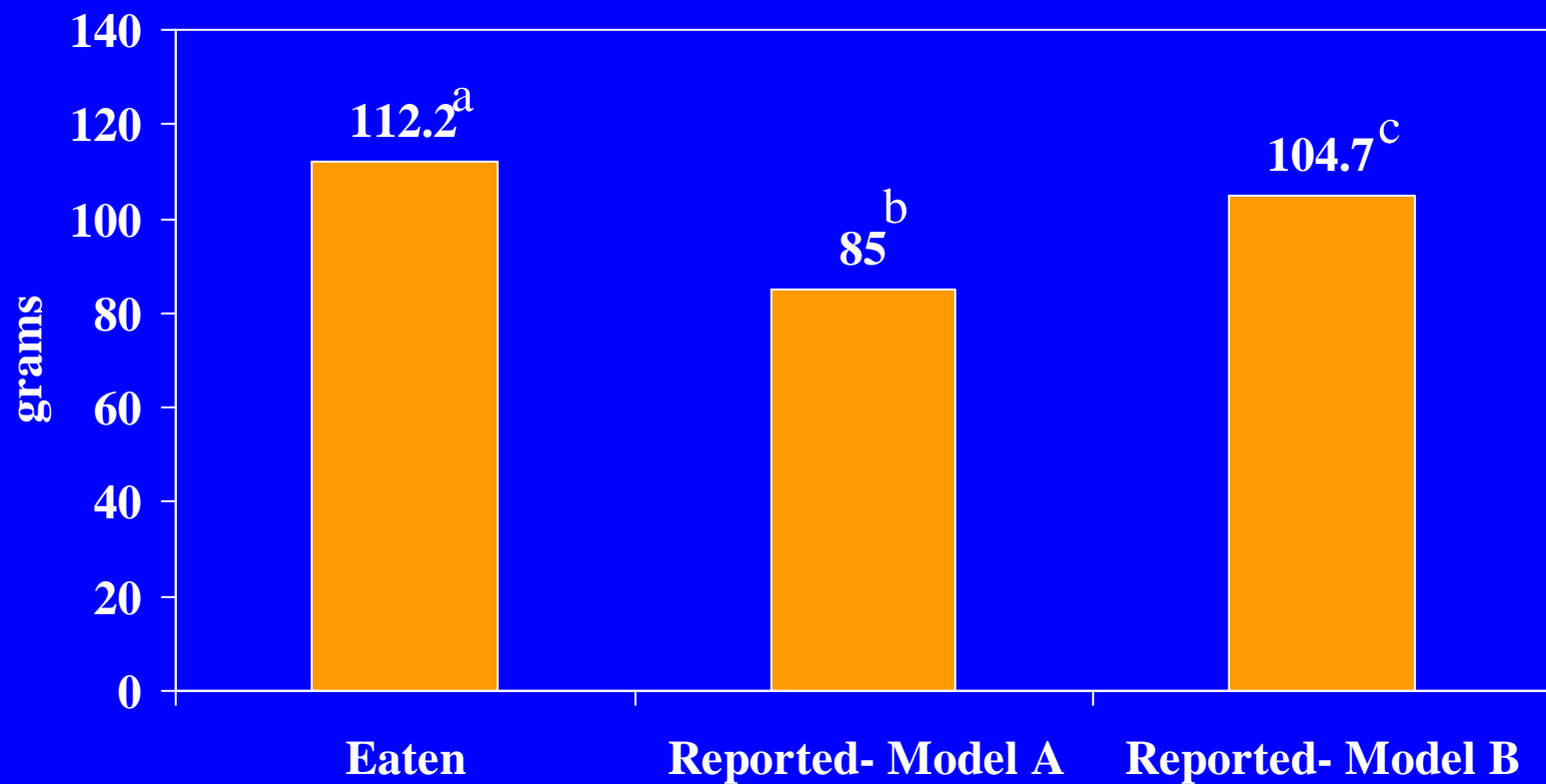
Results:

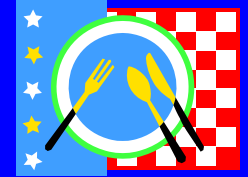
Amount Served and Eaten (n=48)

	Served	Eaten
	mean (SD)	mean (SD)
Hamburger patty (g)	127.1 (4.6)	112.2 (24.2)
French fries (g)	186.2 (33.6)	143.6 (53.1)
Ice cream (g)	142.1 (29)	107.0 (47.0)

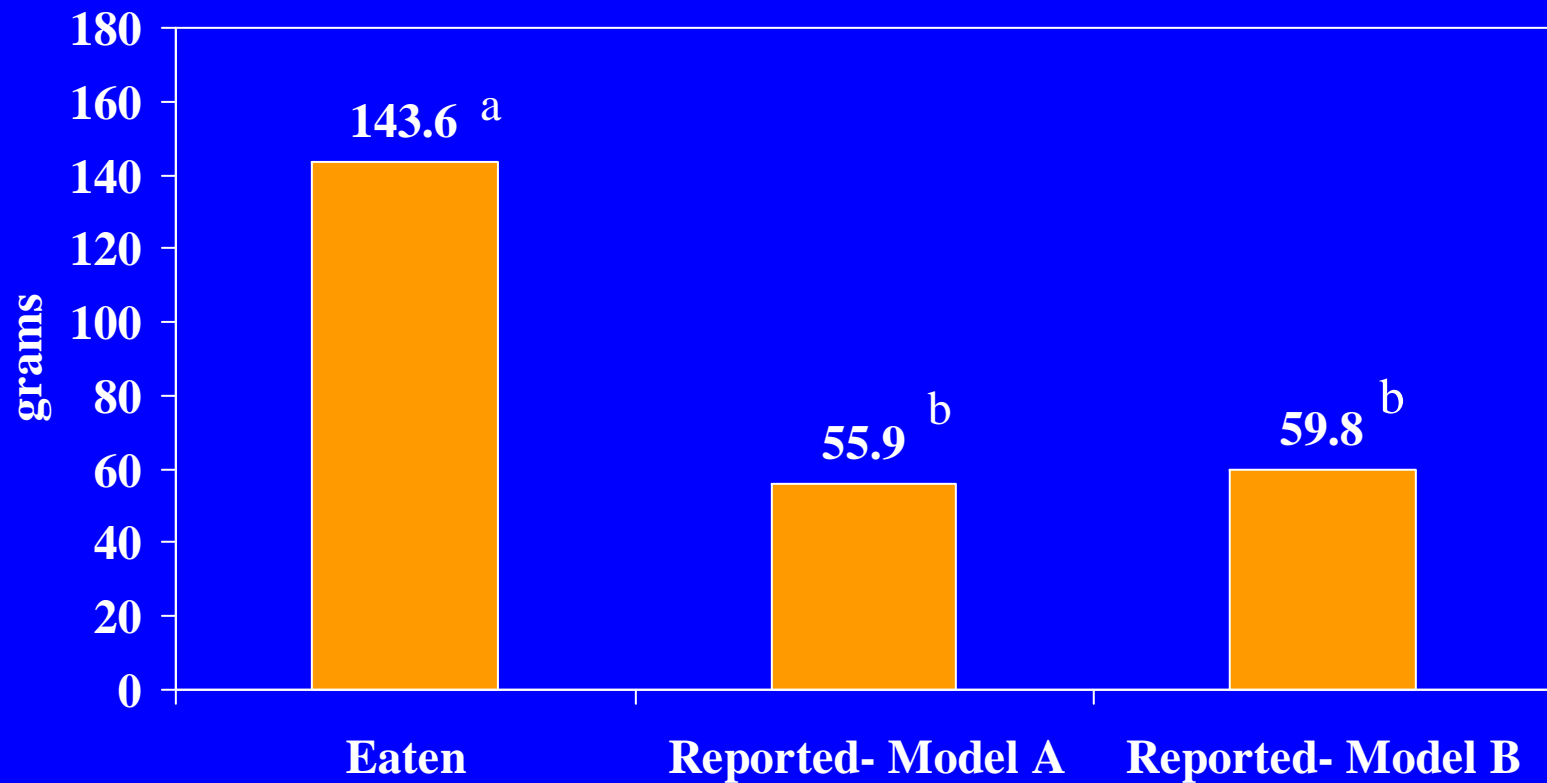


Amount eaten vs amount reported: Hamburger patty



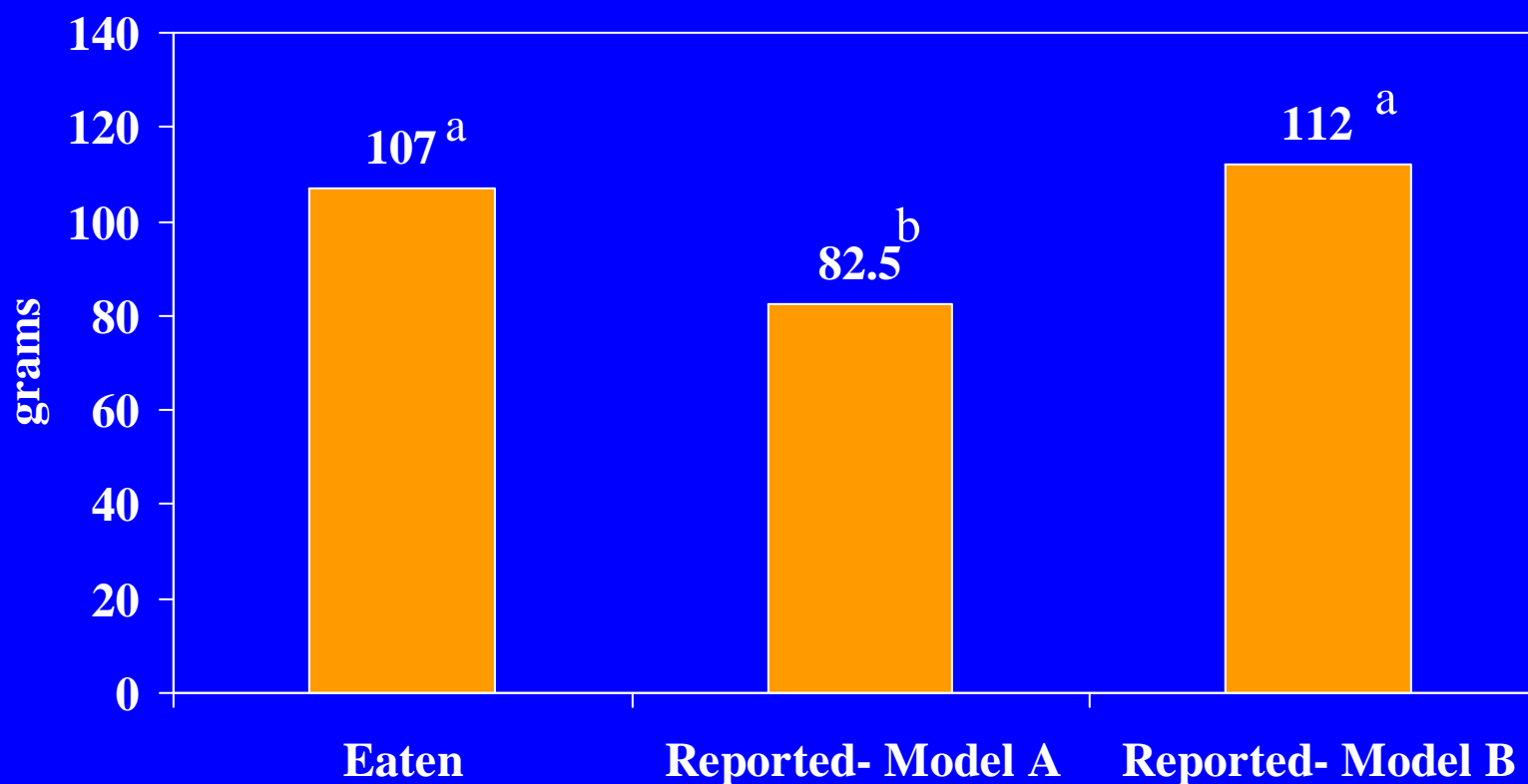


Amount eaten vs amount reported: French fries





Amount eaten vs amount reported: Ice cream





Actual versus reported energy intake (kcal)

	Actual	Reported-A	Reported-B
	mean	mean	mean
Hamburger	343.5	260.2	320.3
French fries	439.4	171.2	182.9
Ice Cream	215.2	165.7	225.2
Total	998.0	599.3	728.5

Why were large food portions
underestimated?



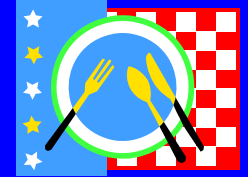
"It's not just compared to the table, damn it. This is a small portion."

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CartoonBank.com



"I'll have the barbecued half-pounder, with all the ramifications."

Mike Twohy New Yorker 6/10/2002



Conclusion and Implications

- Under-reporting of large food portions may contribute significantly to under-reporting of energy intake
- Better portion size assessment methods needed
- People may not be aware of how much they're eating when they dine out