

# Respondent-Specific Coding Guidelines

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Developed to Resolve Missing  
Information on 4-Day Food Records

# Contributors

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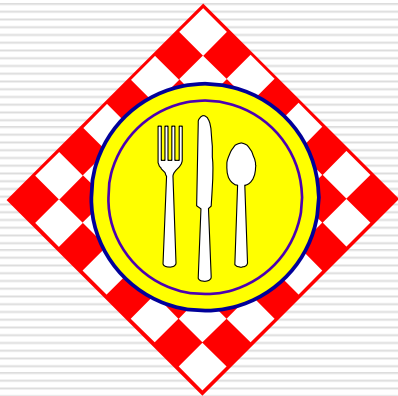
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Anna McIntosh  
Kellar Wilson

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# National Cancer Institute

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Re-contacting Participants in the OPEN\*  
Study  
(Re-OPEN)



\*Observing Protein and Energy Nutrition

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# Background

## OPEN Study\*

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**Purpose:** assess dietary measurement error for energy and protein comparing FFQ/24HR to two biomarkers

### **Demographics:**

- ❑ N=484 men/women
- ❑ 40-69yo
- ❑ predominately White
- ❑ highly educated
- ❑ resided in Montgomery County, Maryland

**Results:** significant underreporting on both FFQ and 24HR

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\* Subar A, et al, Using intake biomarkers to evaluate the extend of dietary misreporting in a large sample of adults: The OPEN study. AJE 2003; 158(1)1-13.

# Background

## Re-OPEN Study

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- N=384 OPEN participants
  - DHQ
  - **4DFR x 2**
  - 7DFL
  - PAQ
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# Objective

## Coding Sub-study

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To determine differences in nutrients with and w/o coding responses to **General Questions** on the food record.

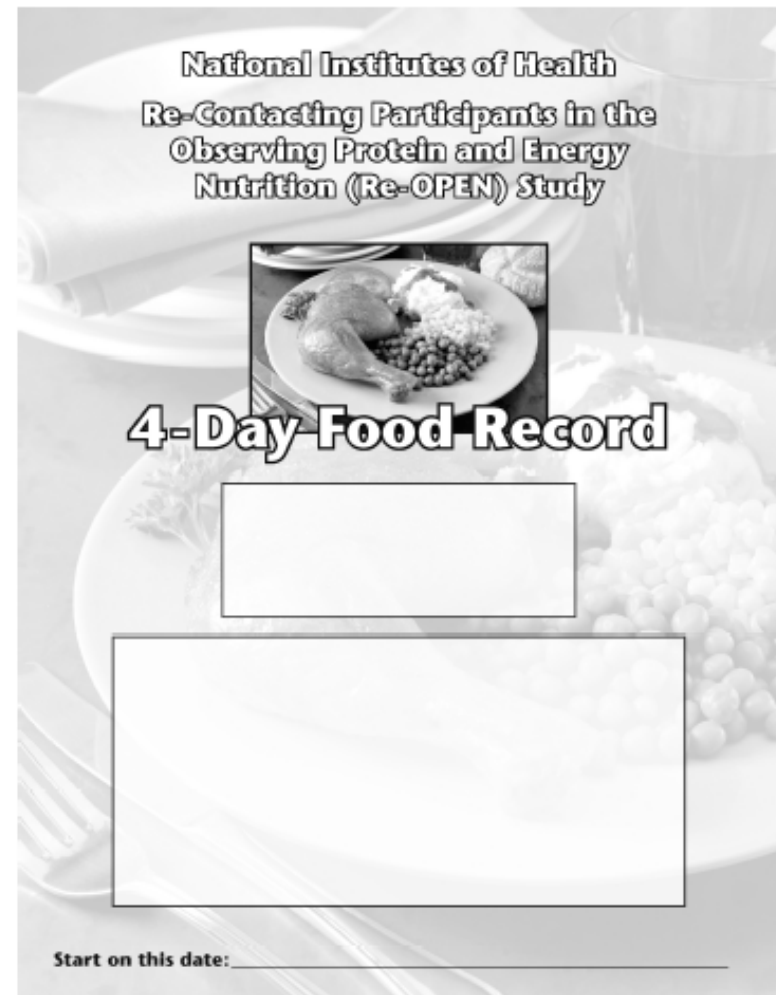
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# Materials

## 4-Day Food Record

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- ❑ Developed by Fred Hutchinson Cancer Research Center
  
  - ❑ 'General Questions' that R completed
    - *Added Fat*
    - *Type Fat*
- 



# Materials

## *Added Fat Questions*

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### **Add to Bread/Coffee**

1. When you eat breads and rolls, how often do you add butter or margarine?
2. How often do you use milk or cream in coffee or tea?

### **Vegetables**

3. When you cook vegetables, how often do you add oil, margarine, or butter?
4. When you eat vegetables, how often do you add oil, butter or margarine at the table?
5. When you eat potatoes, how often do you use butter, margarine, or sour cream?

### **Chicken/turkey Skin**

6. When you eat chicken or turkey, how often do you eat the skin?

**Response: Usually/Always; Sometimes; Rarely/Never**

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# Materials

## *Type Fat Question*

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*What type of milk, spreads and cooking oils do you usually use?*

1. Milk

- Whole
- 2%
- 1%
- skim
- Didn't use

2. Margarine

- Regular
- Diet/low fat
- Fat free
- Spray
- Didn't use

3. Real Butter

- Regular
- Light
- Didn't use

4. Salad dressing

- Regular
- Diet/low fat
- Fat free
- Didn't use

5. Oil

- Canola oil
- Corn oil
- Olive oil
- Soybean oil
- Other oil
- Didn't use

6. Mayonnaise

- Regular
  - Low fat
  - Fat free
  - Didn't use
-

# Methods

## Coding Protocol

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- ❑ 1<sup>st</sup> –flagged records that needed recoding based on General Questions
  - ❑ 2<sup>nd</sup> – Original coding
  - ❑ 3<sup>rd</sup> – Re-coding
  - ❑ UT FIAS 3.99 supported by the CSFII nutrient database.
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# Methods

## Original Coding

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Used standard coding guidelines for missing information

- Milk NFS
  - Salad dressing NFS
  - Butter NFS
  - Margarine NFS
  - Chicken/turkey NS as to skin
  - Vegetables NS as to fat added in cooking
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# Methods

## Recoding - *Added Fat Questions*

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General Question	Recorded in FR		
<b>When you eat breads and rolls, how often do you add butter or margarine?</b>	<b>Always</b>	<b>Sometimes</b>	<b>Never</b>
<b>Usually/Always</b>	Code FR	Code FR	<b>Fat CGL*</b>
<b>Sometimes</b>	Code FR	Code FR	<b>Special CGL**</b>
<b>Rarely/Never</b>	Code FR	Code FR	Code FR

*\*example: code 1/2 Tbsp butter/margarine per slice of bread. (USDA)*

*\*\* Add fat to every other mention of the food. For even numbered IDs add to 1st mention; for odd numbered IDs add to 2nd mention.*

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# Methods

## Recoding - *Type Fat Questions*

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- Used to assign a specific food code to milk, margarine, real butter, salad dressing, oil, mayonnaise.
  
  - Created composite fats
    - Regular butter + Regular margarine
    - Olive oil + Regular butter
    - Regular butter + Sour cream
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# Preliminary Results

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Coded **316** 4DFR

Recoded....

- **260** records (1040 days) (82%)
  - **552** days (53%)
  - **1,112** foods
  - **249** different foods
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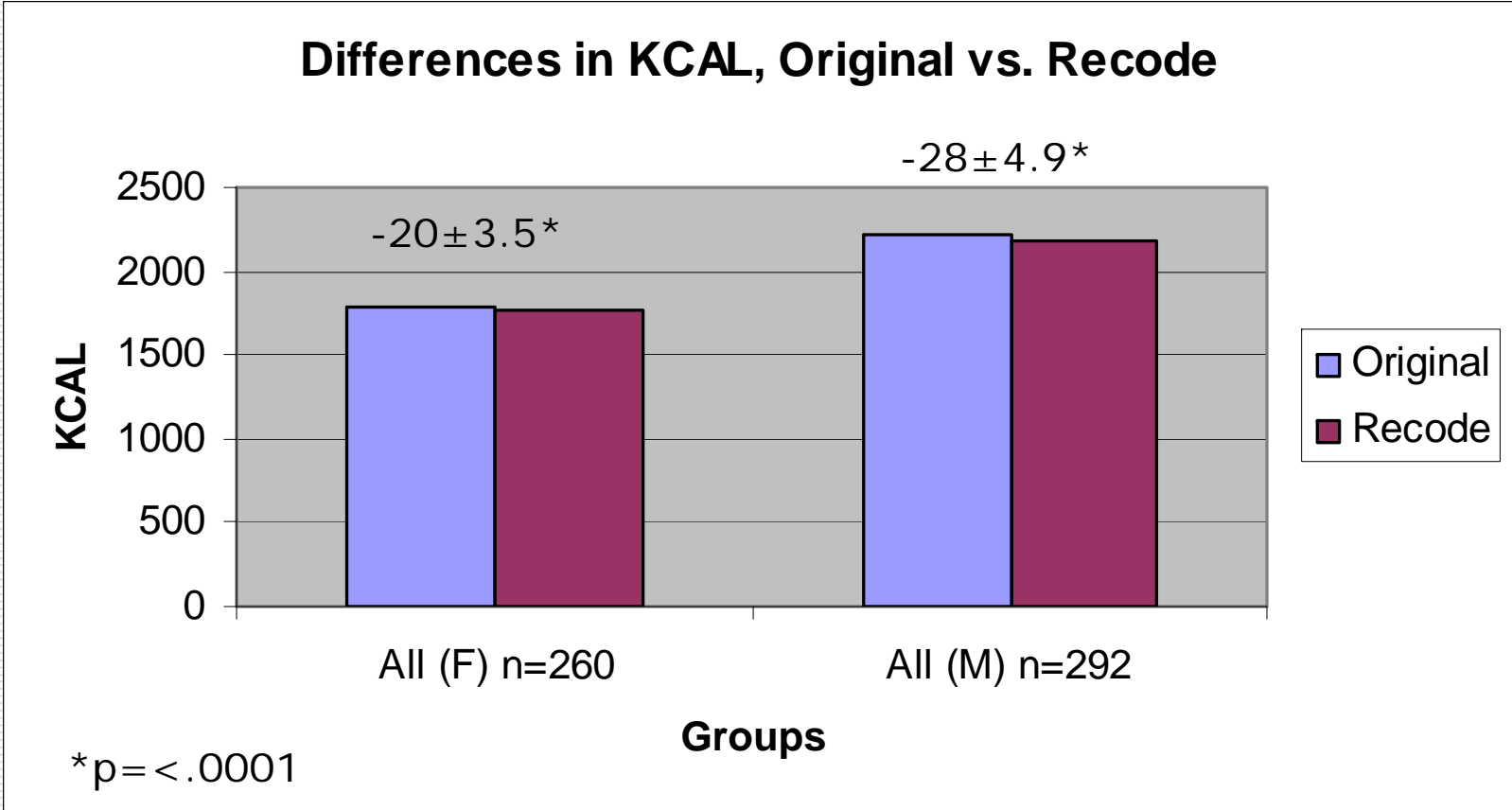
# Preliminary Results

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Most commonly recoded foods

- Cooked vegetables
  - Chicken/Turkey
  - Milk
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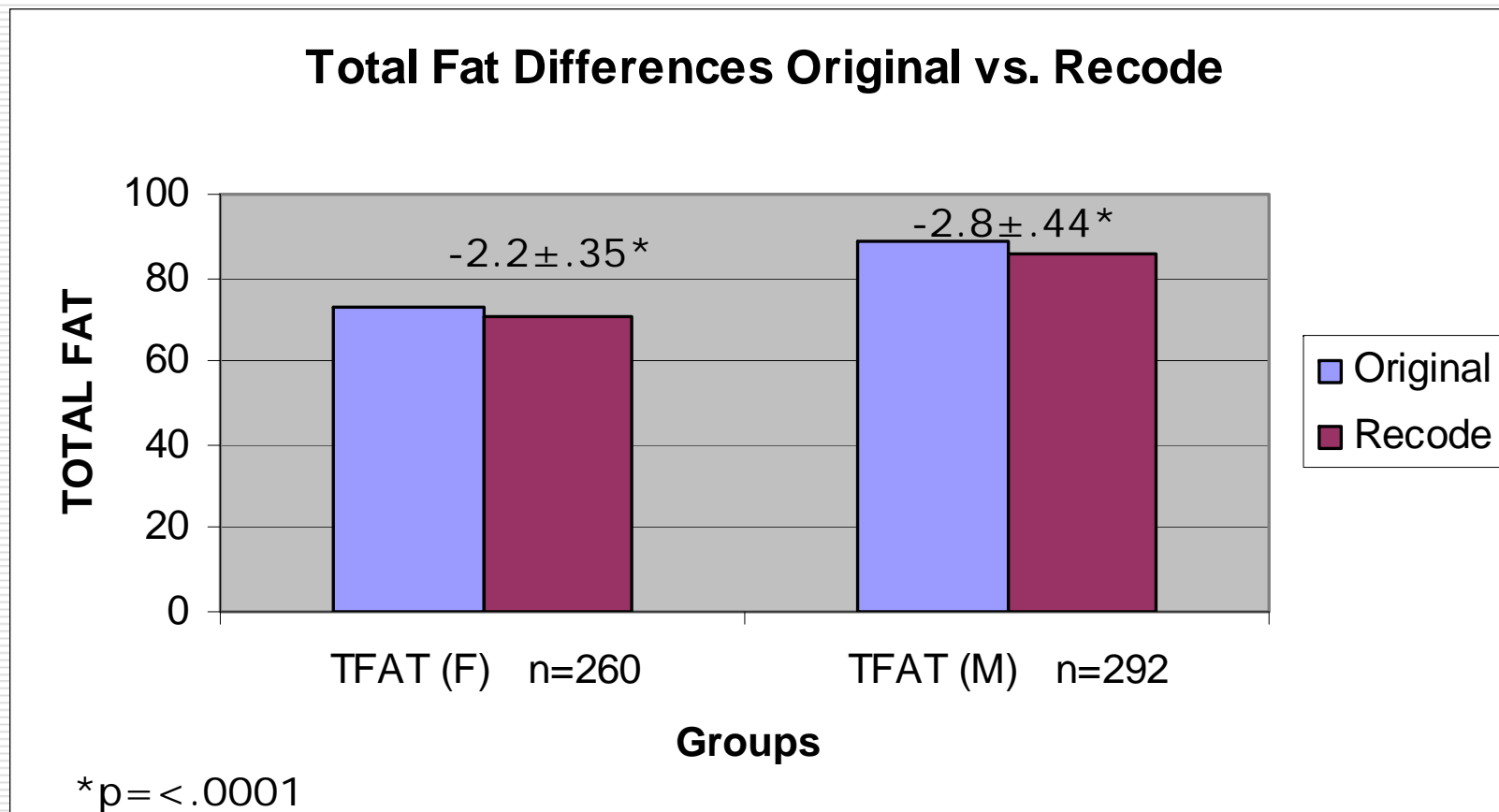
# Preliminary Results





# Preliminary Results

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# Why Decrease?

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Original coding – NS and NFS codes generally assume fat

Food R Recorded	Code Applied	Code Description
Cooked vegetables	NS as to fat added	Assume <b>cooked in fat</b>
Milk	Milk NFS	Composite of 4 milks ~ <b>2%</b>
Chicken/turkey	NS as to skin	Assume <b>skin eaten</b>
Salad dressing	Salad dressing NFS	<b>Regular fat</b> dressing
Margarine	Margarine NFS	Margarine-like spread, <b>60% fat</b>
Real butter	Butter NFS	<b>Butter</b>

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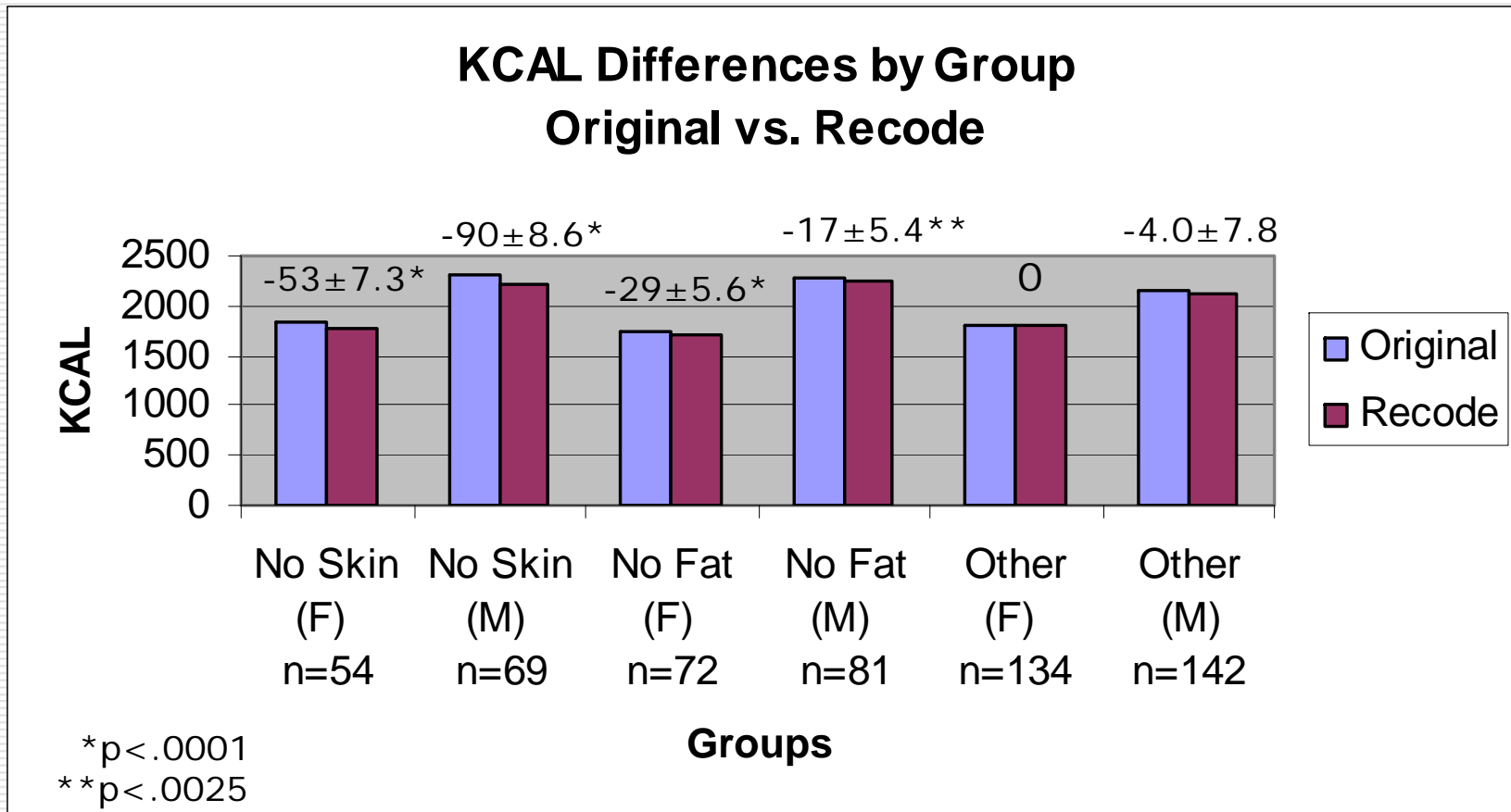
# Preliminary Results

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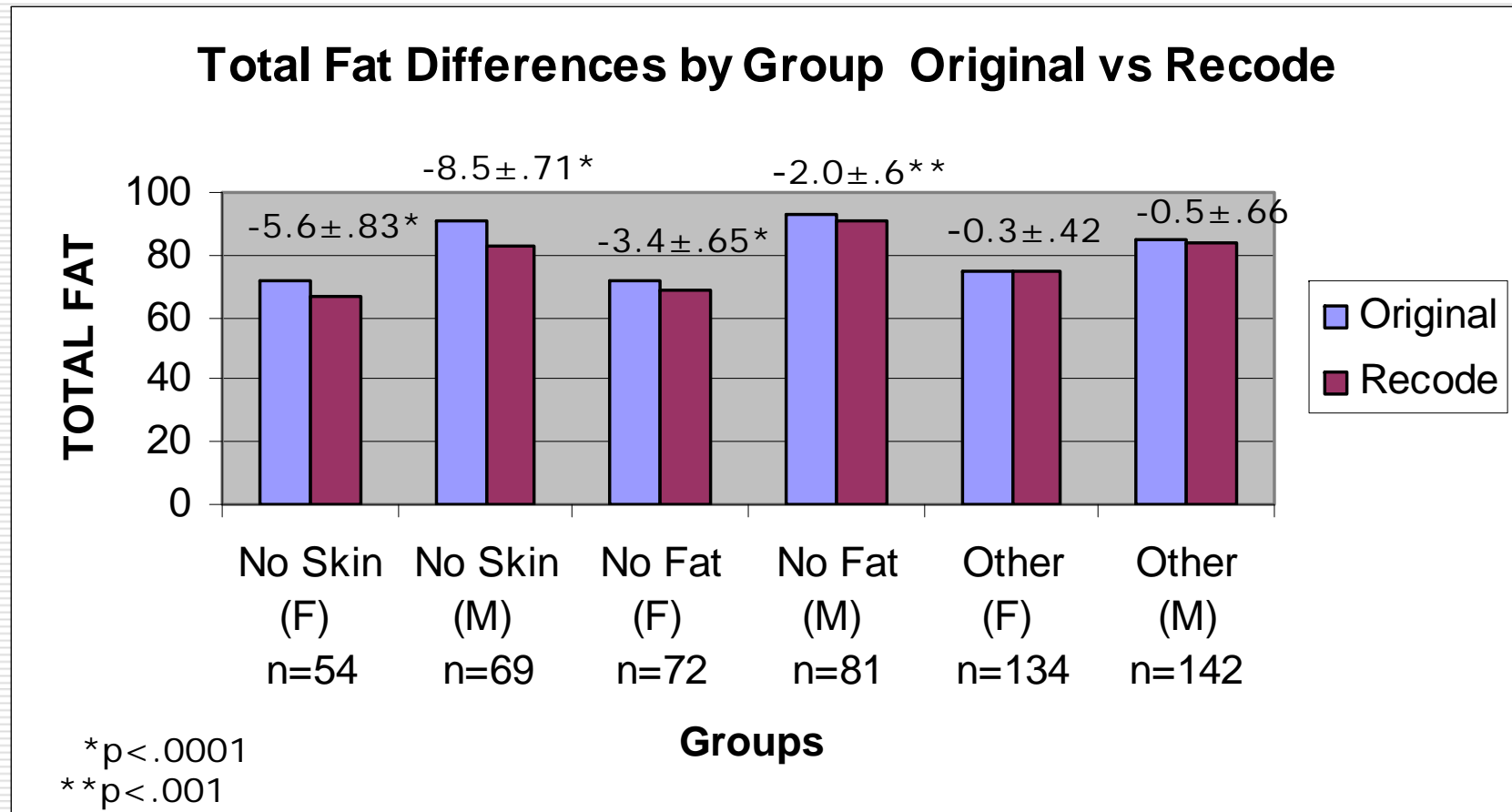
Divided into 3 groups:

- Recode NO SKIN
  - Recode NO FAT in vegetables
  - Recode OTHER
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# Preliminary Results



# Preliminary Results



# Preliminary Results

BEST PREDICTORS OF RECODE				
Reason Recodes	KCAL		TFAT	
	Male	Female	Male	Female
NoSkin	-82±12*	-54±8*	-8.1±1*	-5.9±.8*
MilkSkim	0	-40±13**	0	-4.3±1.3**
MilkWhole	6±24	-3±16	1.8±2.1	-.2±1.7
Milk1%	6±23	-15±16	1.3±1.2	-1.9±1.6
Milk2%	6±15	-16±14	-.16±1.3	-1.8±1.4
DietDressing	-44±43	-29±34	-6.1±3.7	-5.6±3.5
VegNoFat	-20±11	-46±7*	-2.4±.9***	-4.7±.7*
AddedFoods	44±10*	36±7*	4.0±.8*	3.3±.7*
Misc	-24±16	-30±10**	-3.3±1.4	-3.4±1.1**

\*p<.0001    \*\*P<.002    \*\*\*p<.01

# Summary

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- ❑ Recoded days were significantly different from original coding (n=552)
  - ❑ The change was downward for affected nutrients
  - ❑ Recoding chicken/turkey to 'skin not eaten' had greatest effect on nutrients
  - ❑ *NoSkin* and *AddedFoods* are good predictors of recoding
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# Discussion

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- Are the General Questions useful?
  - Are the results real?
    - Bias?
    - General Question guidelines too stringent?
    - Standard Coding guidelines representative?
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# Significance

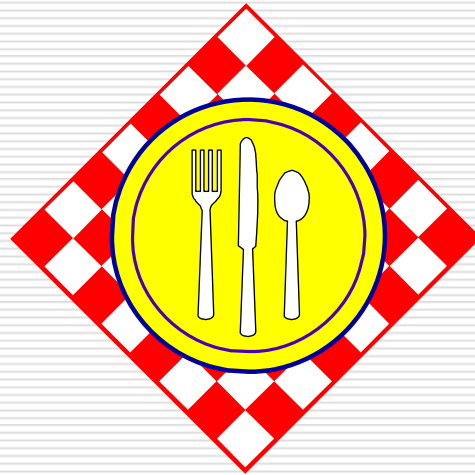
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General questions have the potential to reduce respondent burden.

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# Respondent-Specific Coding Guidelines

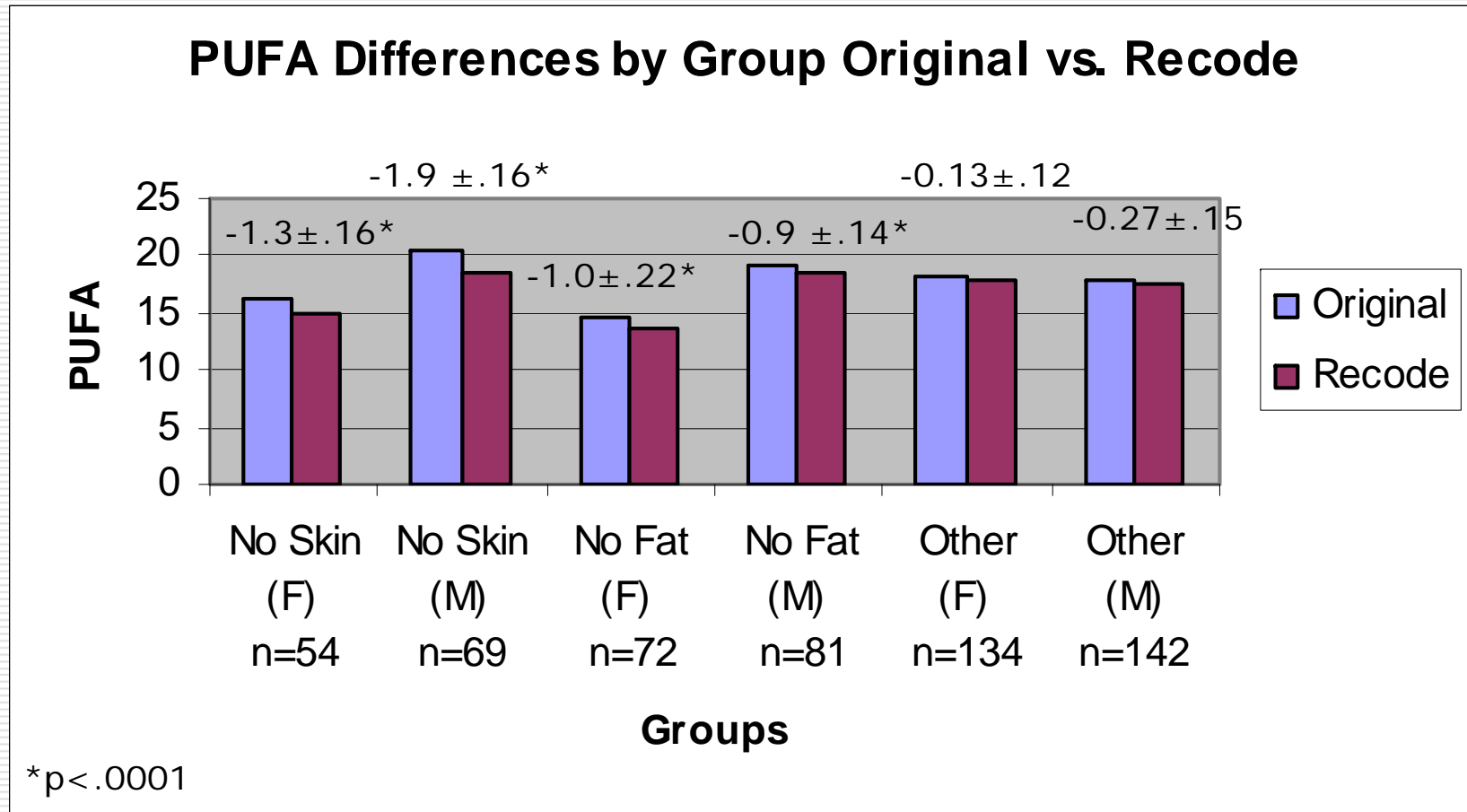
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Thank you

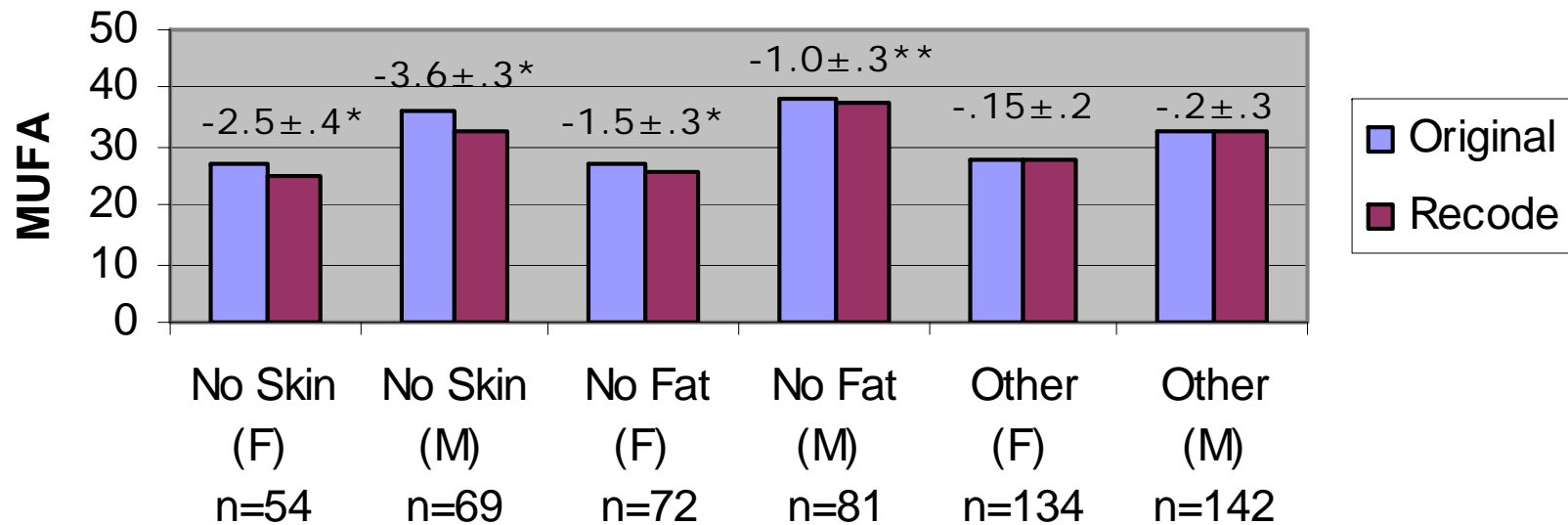
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# Preliminary Results



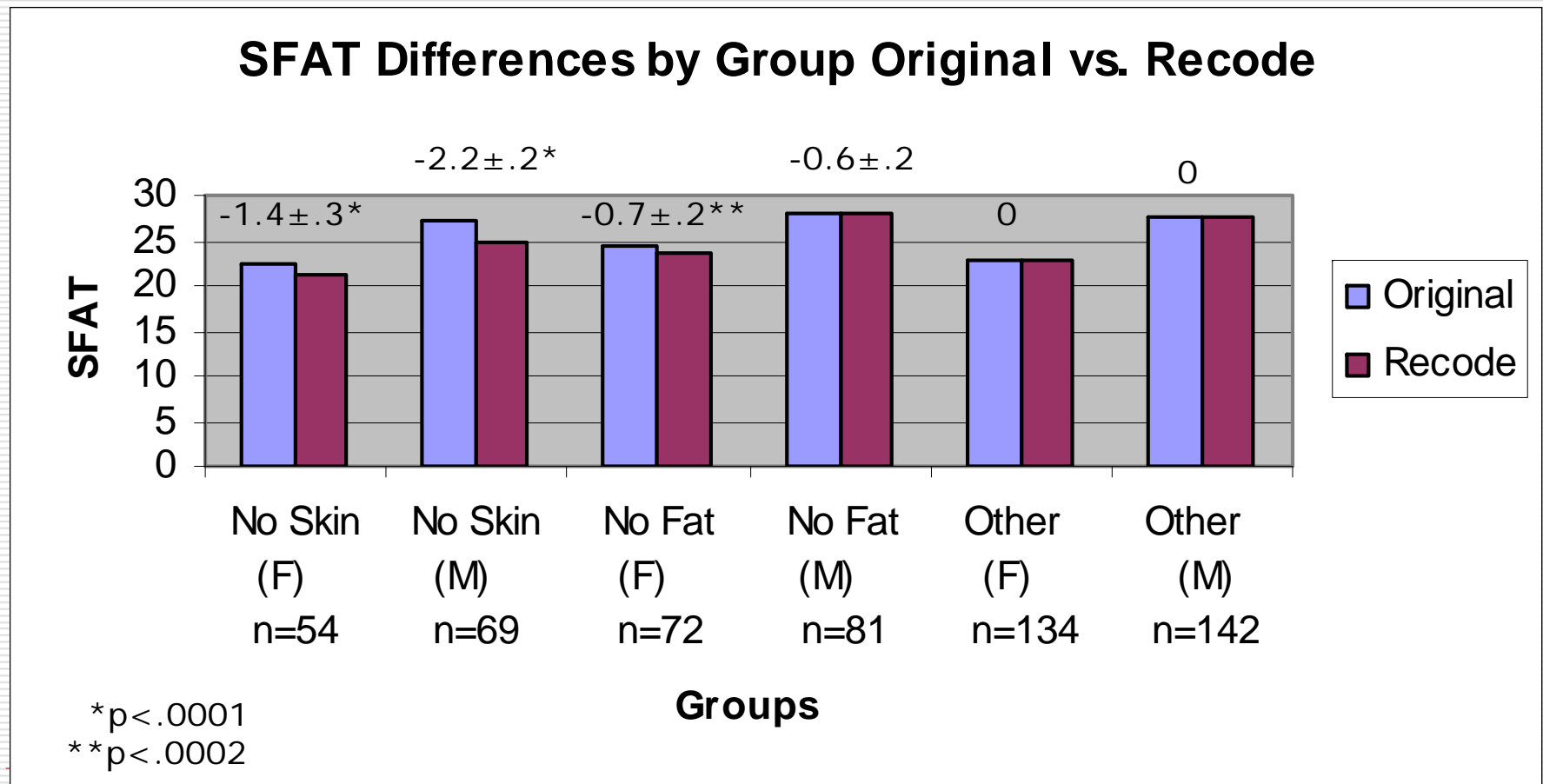
# Preliminary Results

## MUFA Differences by Group Original vs. Recode



\*p < .0001  
\*\*p < .0003

# Preliminary Results



# Preliminary Results

