

# The Skinny on Total Fat: A Matter of Quality vs. Quantity

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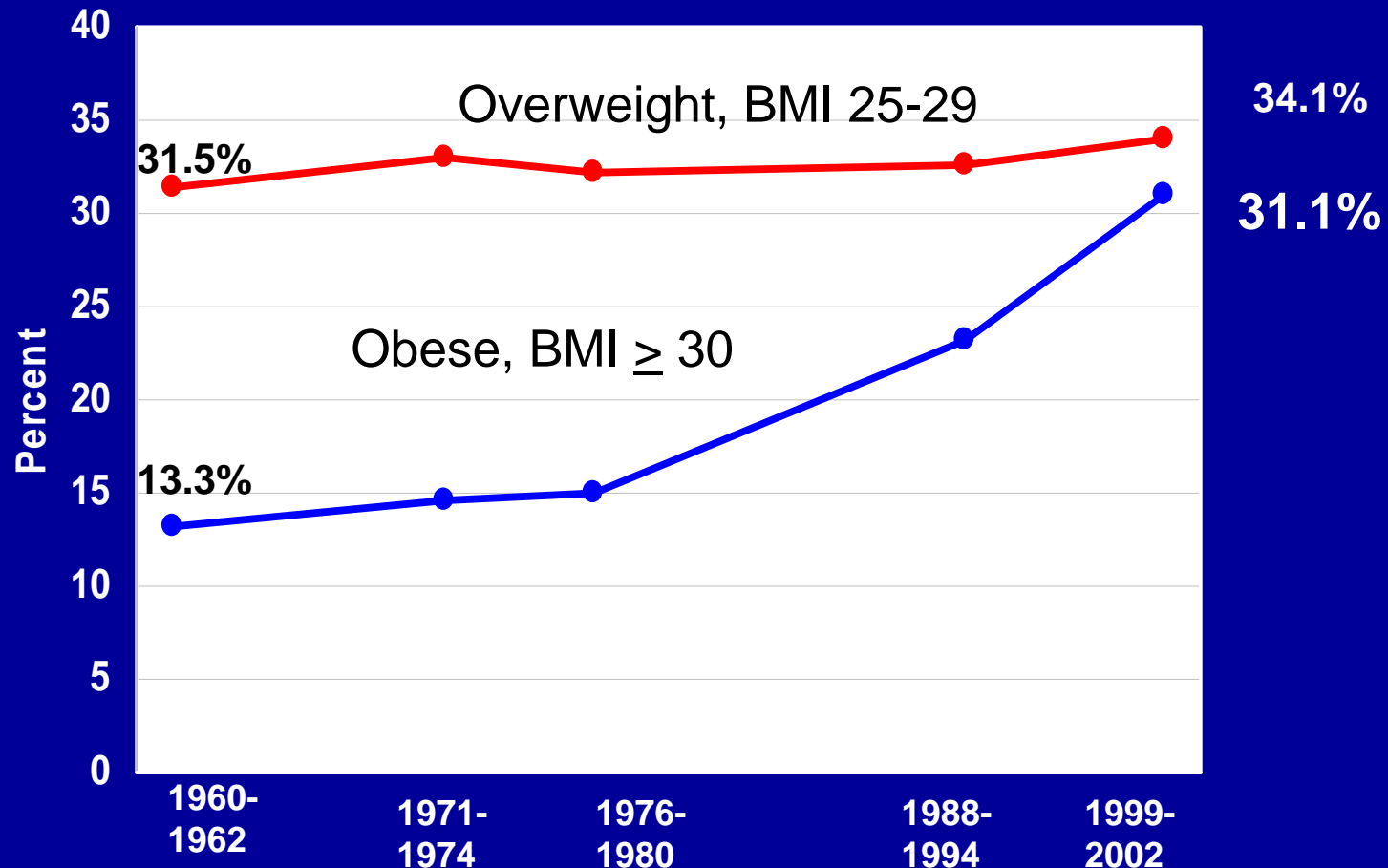
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# Topics

- Obesity and Dietary Fat Trends
- Fat in Multicenter Clinical Trials
- Fat in Dietary Recommendations
- Implementing Recommendations

# Obesity and Dietary Trends

# Trends-Overweight & Obesity in Adults: United States from 1960-2002

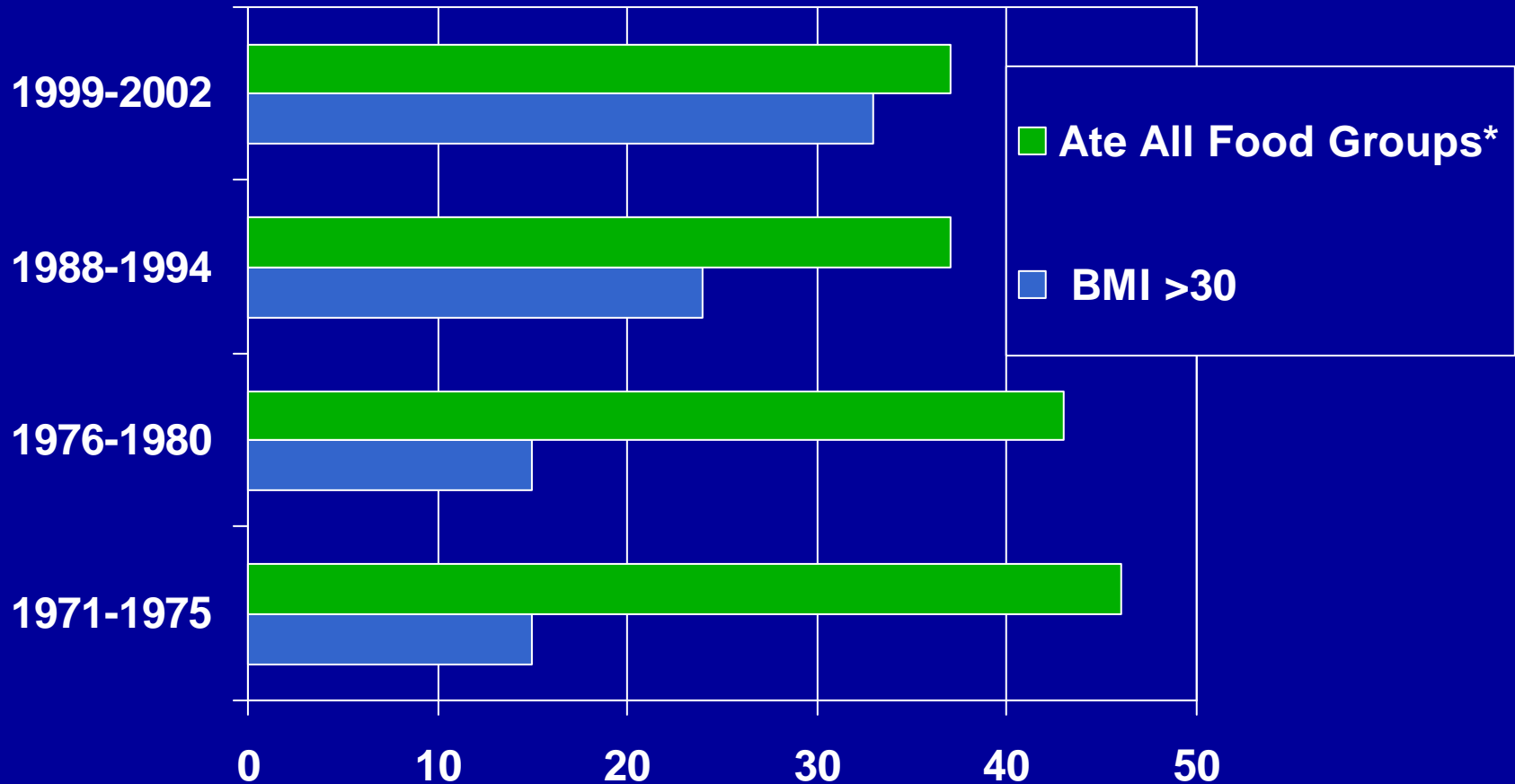


SOURCES: Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Examination Survey and National Health and Nutrition Examination Survey. Health, United States, 2004

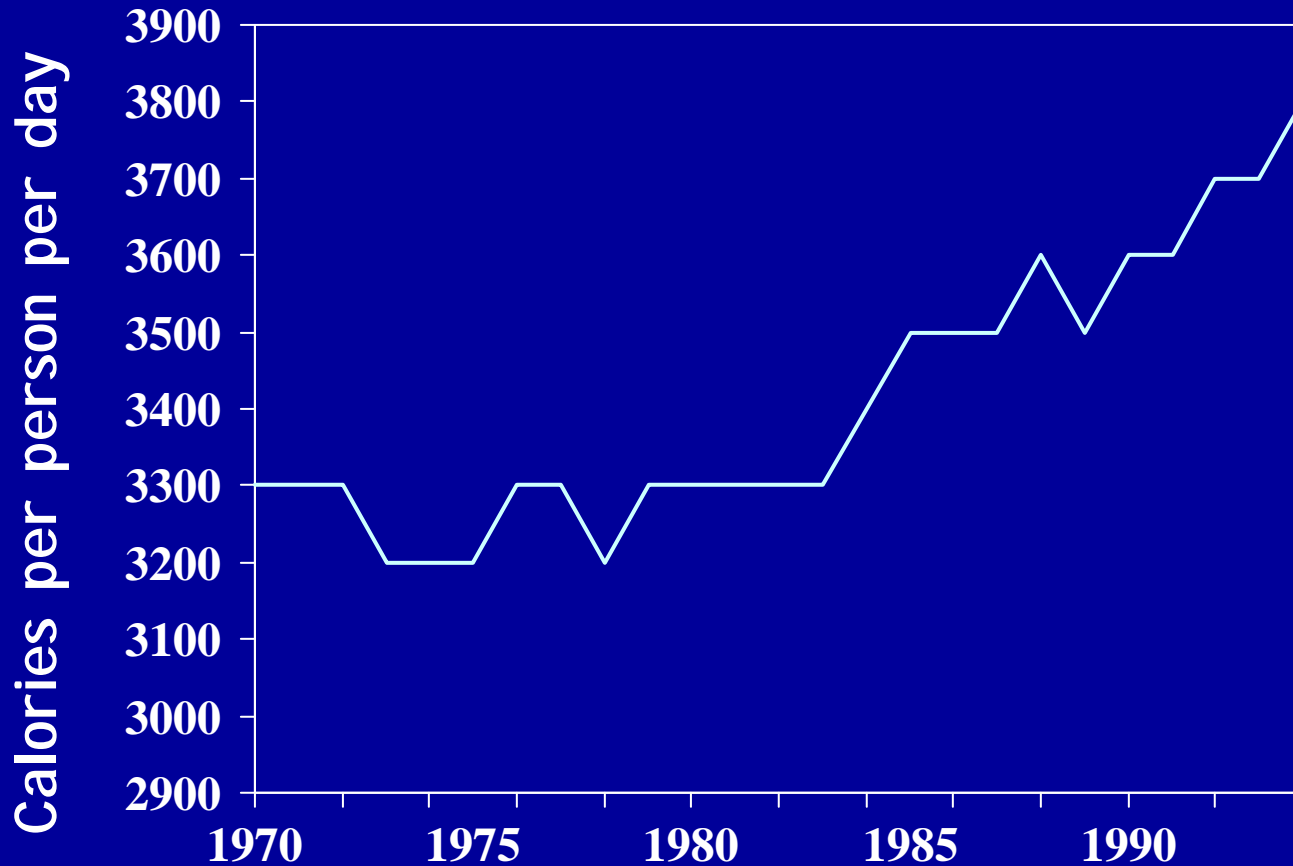
# Obesity and Dietary Trends

## National Health and Nutrition Survey (NHANES)

Percent of Population



# Increase in Available Calories Food Supply



*Slide: Courtesy of American Cancer Society*

# Increase in American Energy Intake

## Per Capita Total Calories

|                            | 1971-1974 | 1999-2000 |
|----------------------------|-----------|-----------|
| Men<br><b>+ 168 Kcal</b>   | 2450      | 2618      |
| Women<br><b>+ 335 Kcal</b> | 1542      | 1877      |

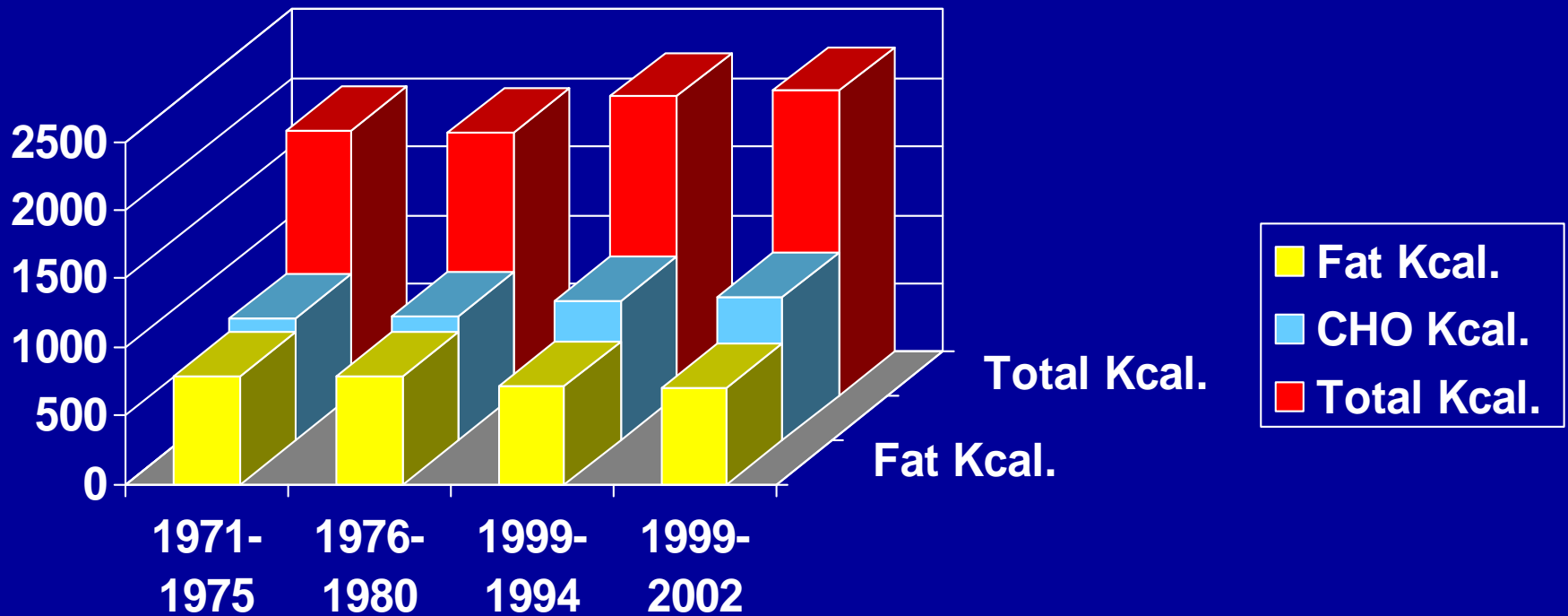
CDC, MMWR Weekly 53 (04): 80-82, Feb 6, 2004 (NHANES)

*Slide: Courtesy of American Cancer Society*

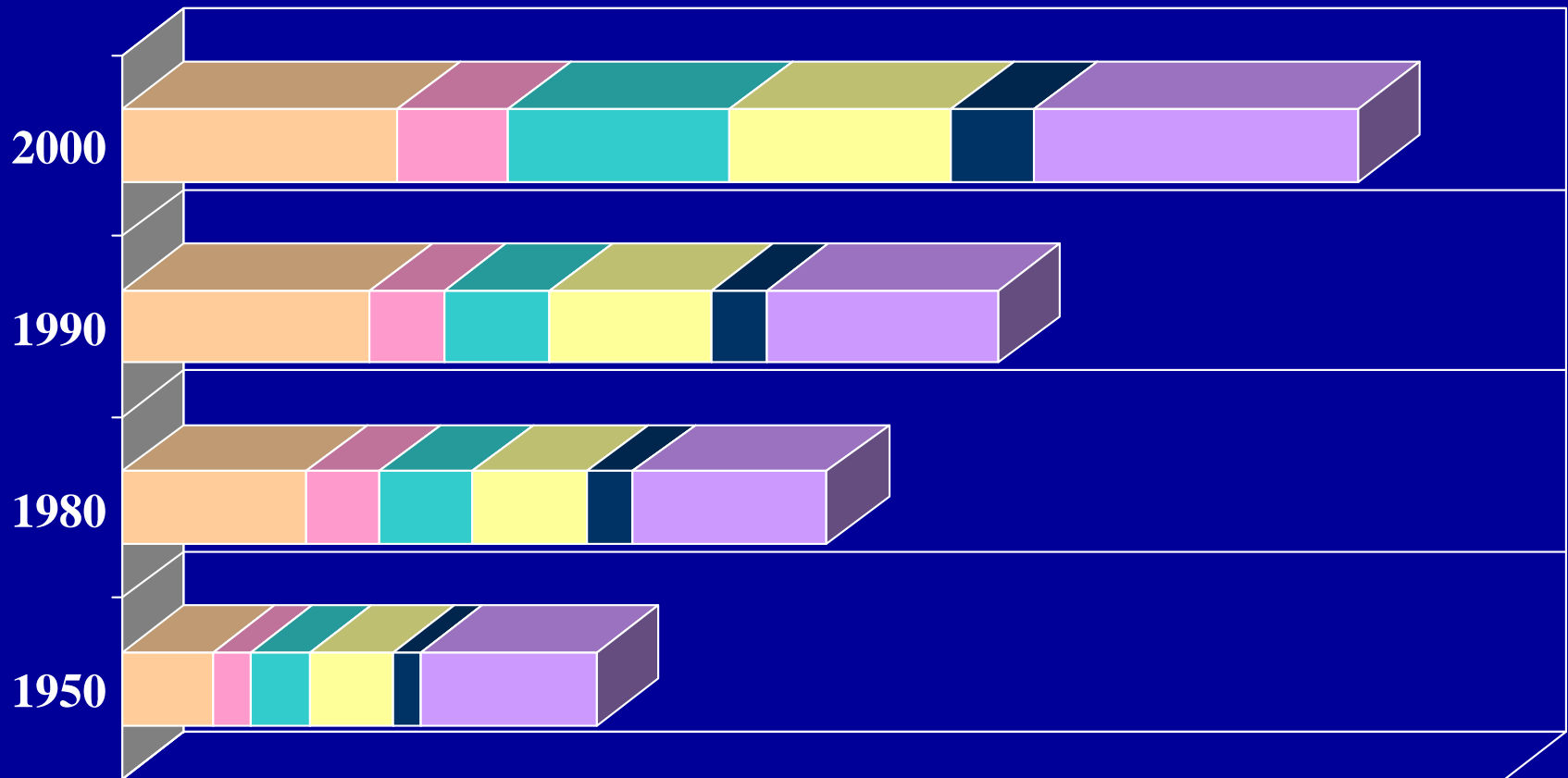
# National Health and Nutrition Survey (NHANES)

## Dietary Trends

Increase in Total Energy Intake with Decrease in Proportion from Fat



# Dietary Trends for Supersizing



**Fries/sv** **Soda/sv** **Chip/sv** **Muffin/sv** **Juice/sv** **total sugar**

USDA Household Food Consumption Survey

# Nurses' Health Study

8 Year Follow-up

Weight gain was predicted by percent increase:

- Trans fat
- Saturated fat
- Animal fat
- Total fat (weakly)

# Reduced Fat Interventions

## Multi-center Clinical Trials

- Dietary Prevention Program
- Women's Health Initiative



# Diabetes Prevention Program

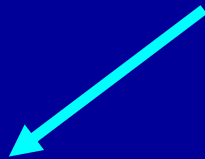
**Eligible participants**



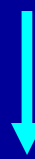
**Randomized**



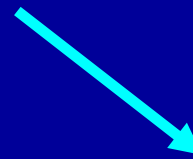
**Standard lifestyle recommendations**



**Intensive  
Lifestyle  
(n = 1079)**



**Metformin  
(n = 1073)**



**Placebo  
(n = 1082)**



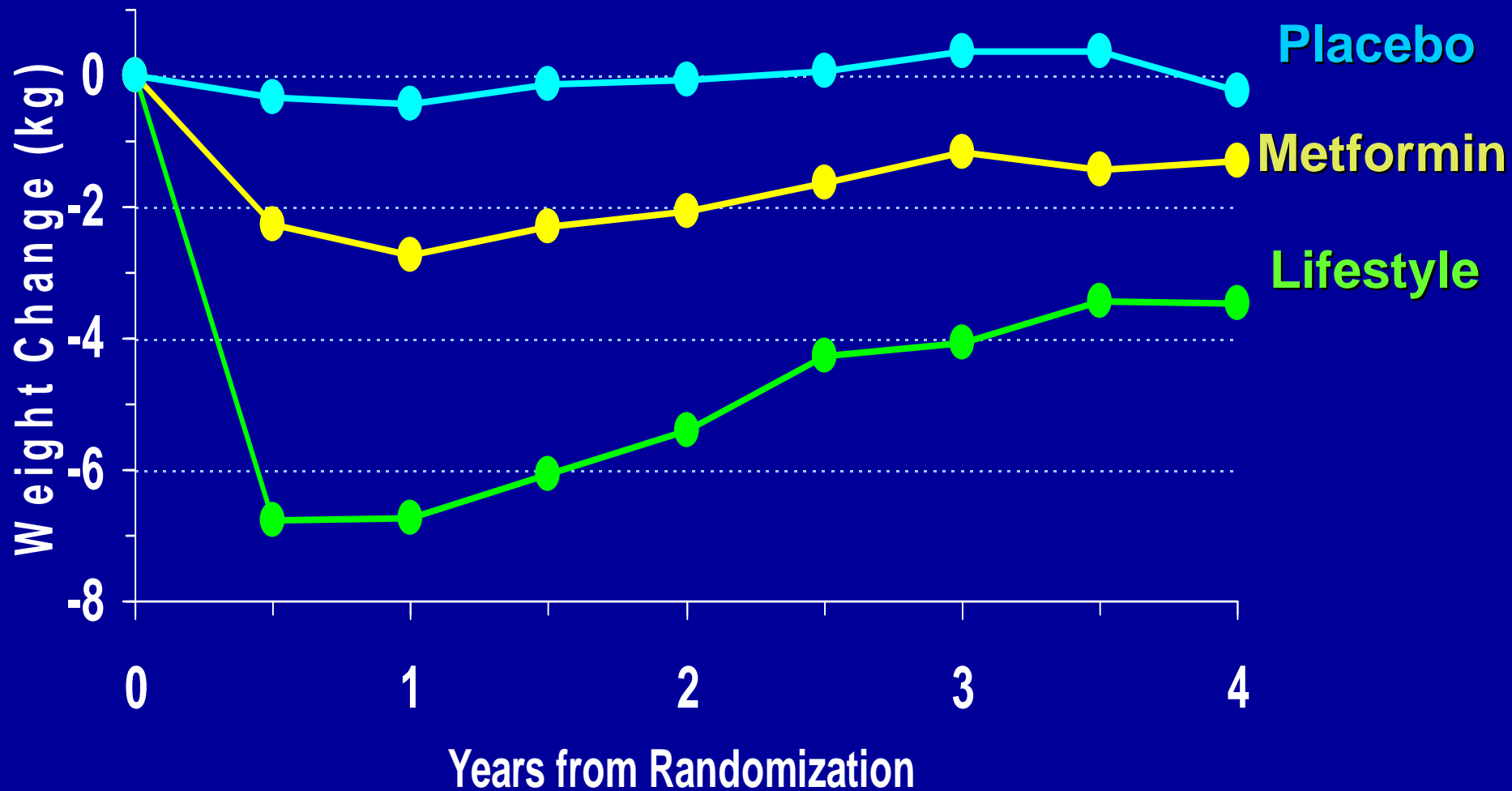
# Diabetes Prevention Program

## Intensive Lifestyle Intervention Goals

- 7% weight loss
- 150 minutes of physical activity/ week
- Dietary intake goals
  - Fat gram goal (25% adjusted caloric goal)
  - Behavioral change goals

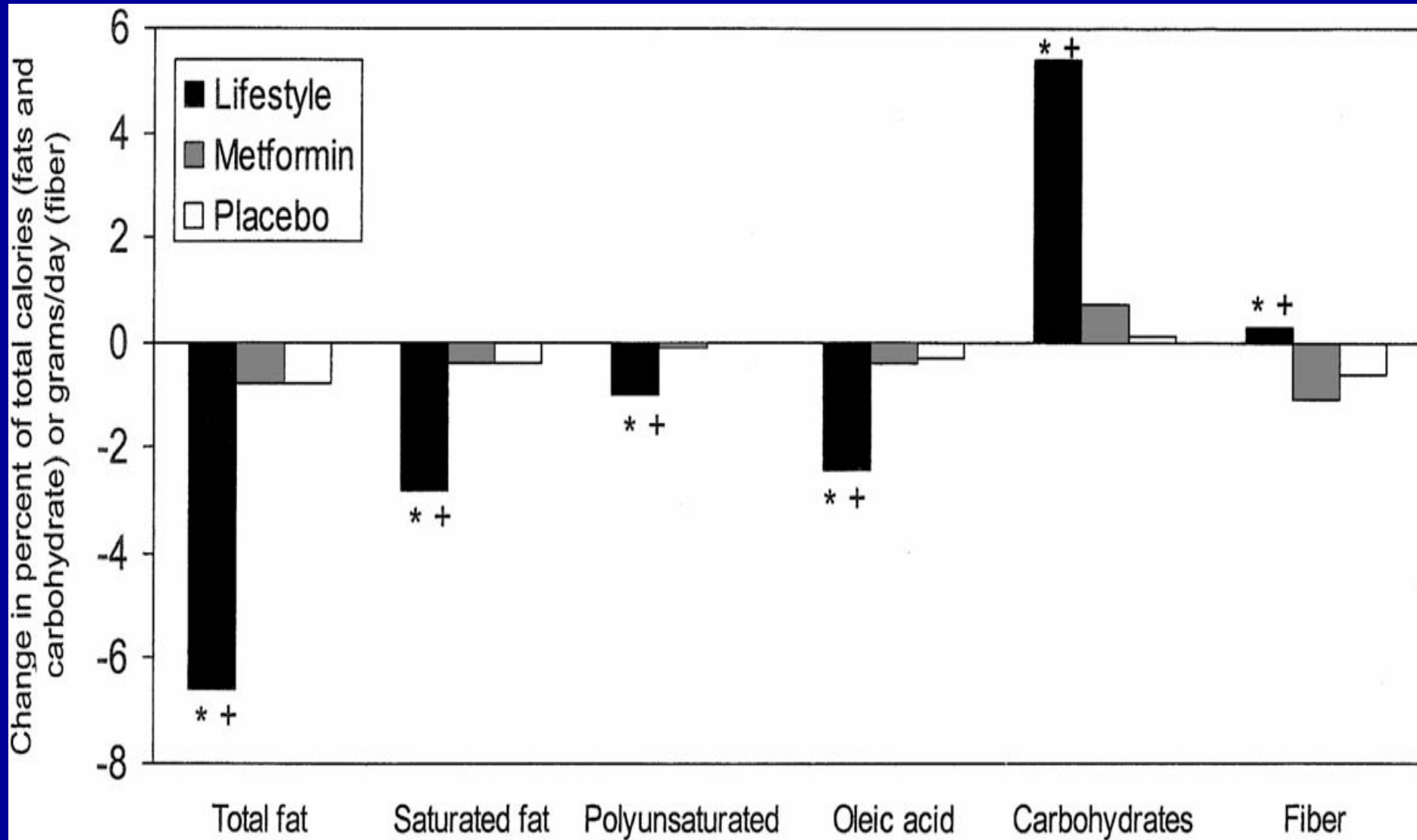


# Diabetes Prevention Program Mean Weight Change



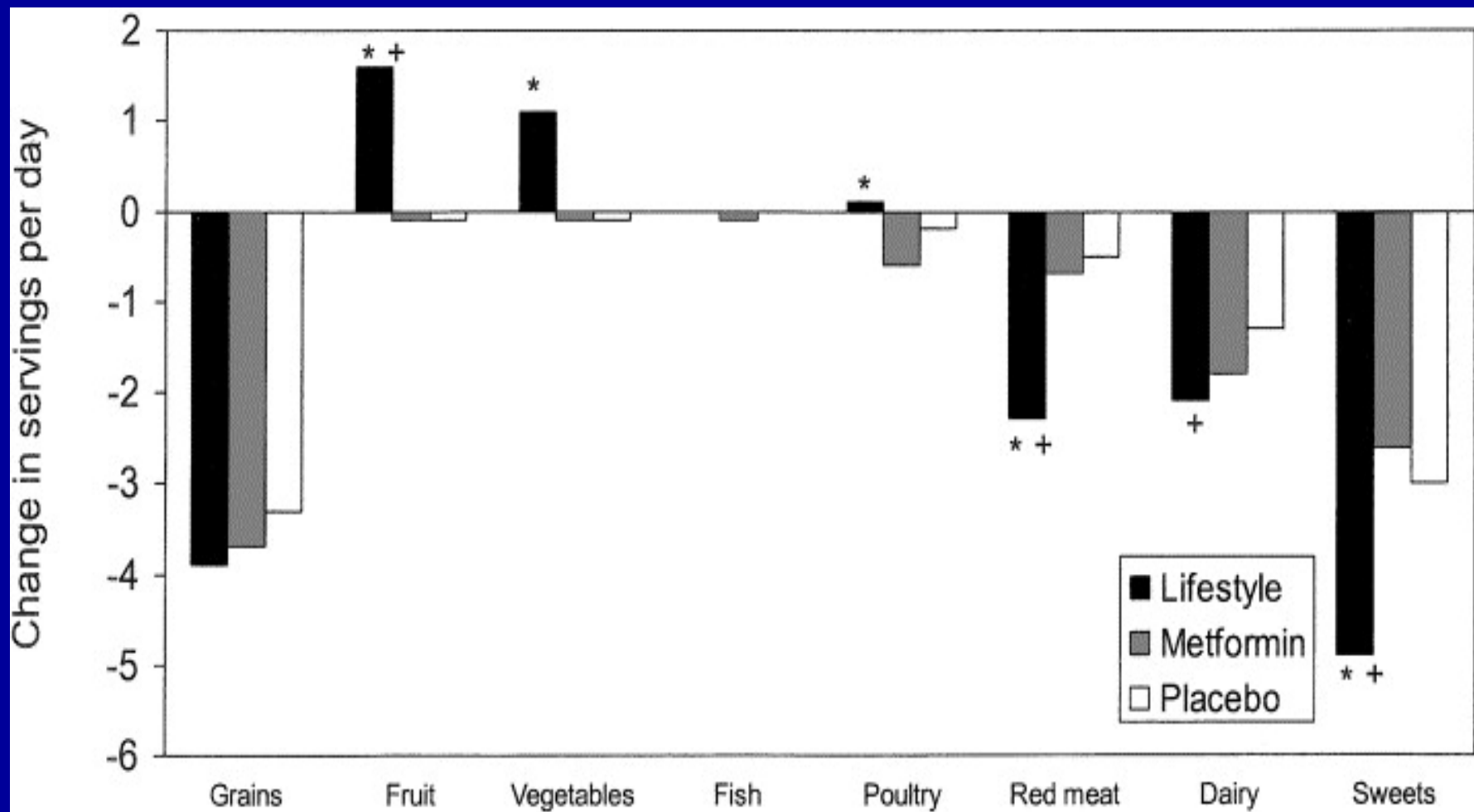


# Diabetes Prevention Program Dietary Change



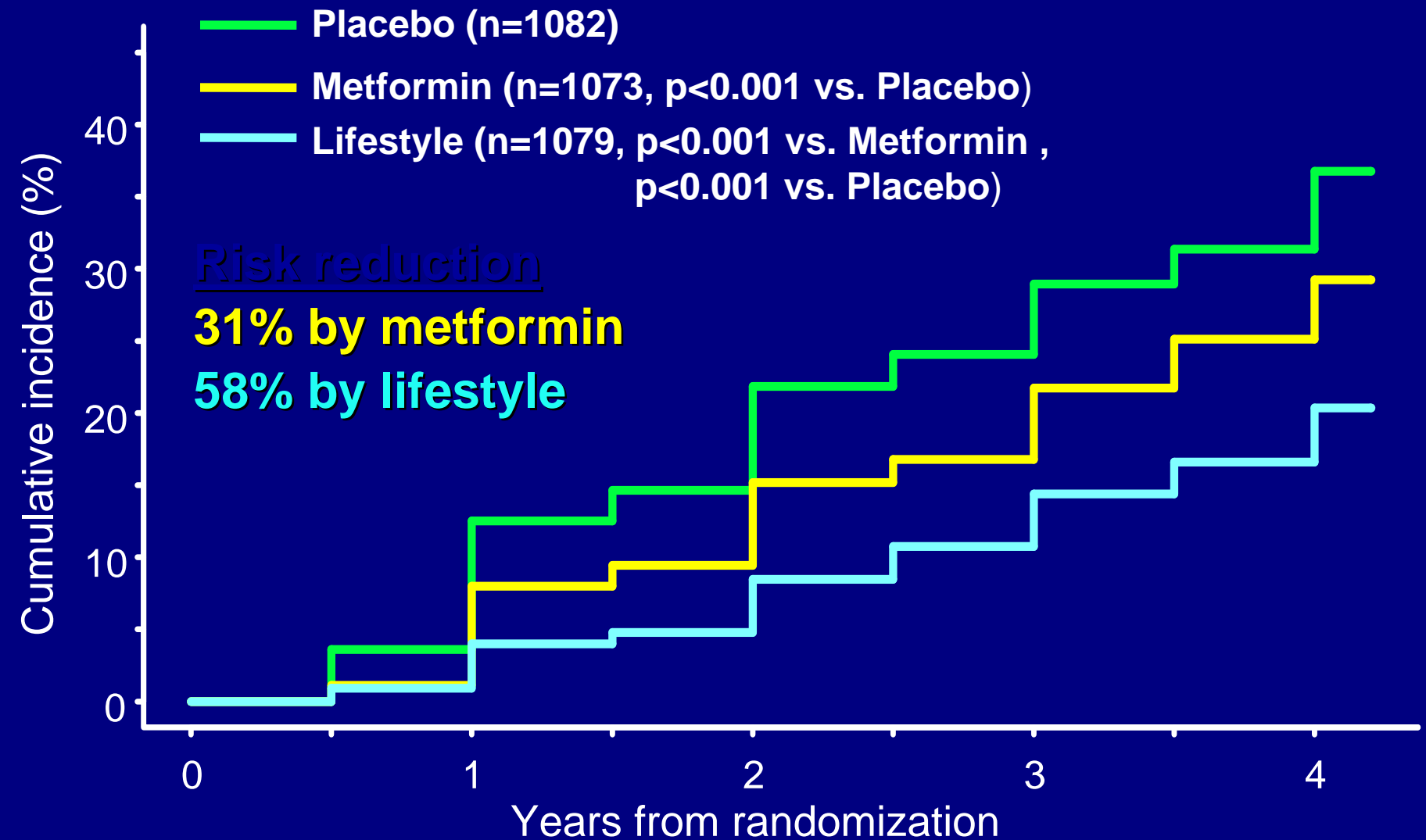


# Diabetes Prevention Program Dietary Change





# Diabetes Prevention Program Incidence of Diabetes





# Diabetes Prevention Program

## Incidence of Diabetes

|   | <u>Placebo</u> | <u>Metformin</u> | <u>Lifestyle</u> |
|---|----------------|------------------|------------------|
| <u>Incidence</u> of diabetes<br>(percent per year)            | 11.0%          | 7.8%             | 4.8%             |
| <u>Reduction</u> in incidence<br>compared with placebo        | ----           | 31%              | 58%*             |
| <u>Number needed to treat</u><br>to prevent 1 case in 3 years | ----           | 13.9             | 6.9              |

\* 43% reduction if at physical activity goal but not weight goal



# Diabetes Prevention Program

## Changes Novel Cardiometabolic Risk Factors

|            | Placebo | Metformin | Lifestyle |
|------------|---------|-----------|-----------|
| Fibrinogen | + 0.5%  | -0.3%     | -2.0%     |
| CRP        |         |           |           |
| Men        | +5.0%   | -7.0%     | -33.0%    |
| Women      | 0       | -14.0%    | -29.0%    |

Diabetes 2005;54:1556.



# WHI

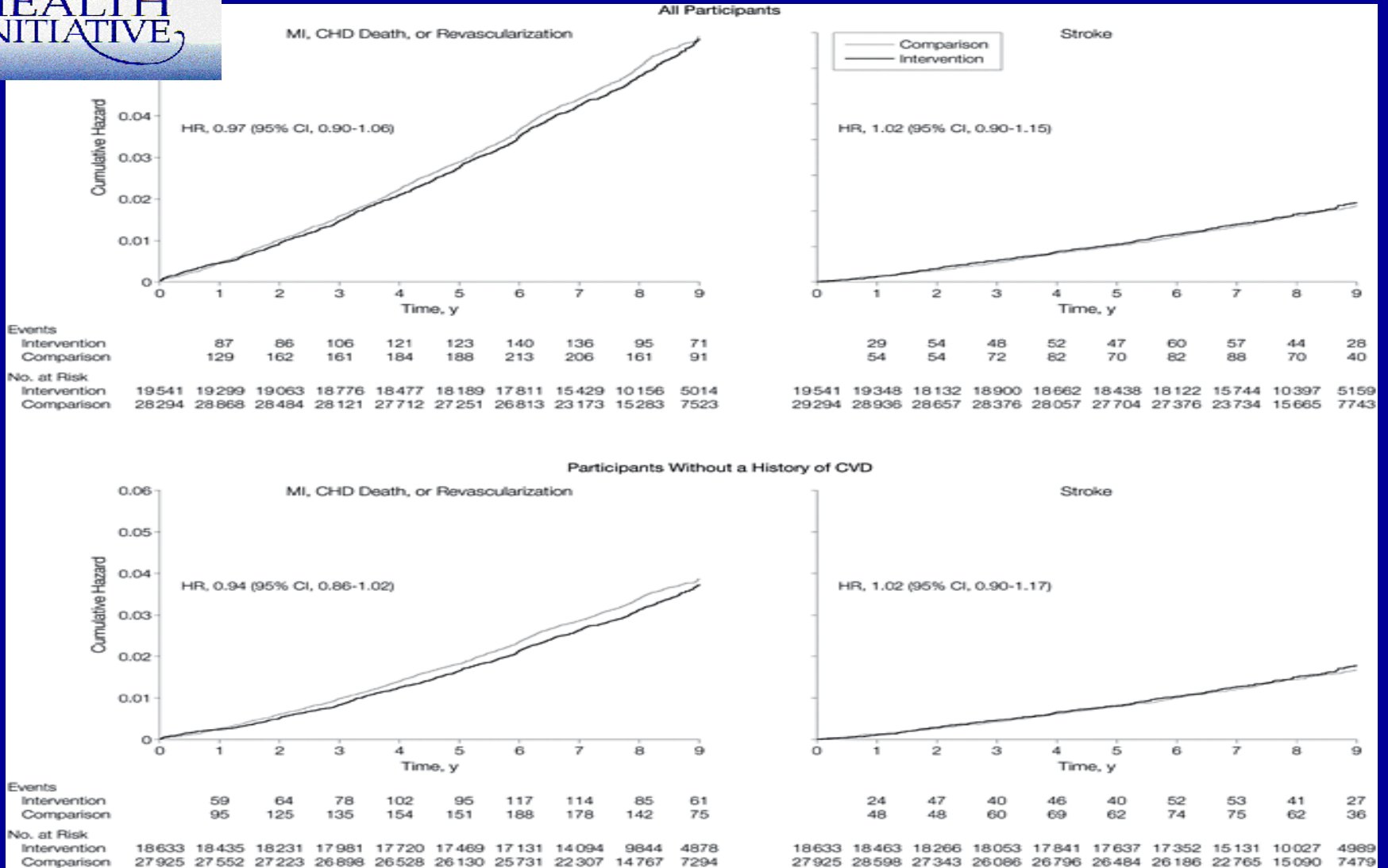
## Dietary Modification Trial (n= 48,835)

- Eligibility Criteria
  - > 32% fat intake
  - Post menopausal women
- Dietary Intervention Goals
  - Reducing total fat < 20% of energy intake
  - At least 5 servings of fruits and vegetables
  - At least 6 servings of grains



# WHI

## Dietary Modification Clinical Trial *No significant change in CVD Events*





**Table 4. Low-Fat Dietary Pattern and Weight Change Over Time: Results From a Multivariate-Adjusted Model**

|  | Average Rate of Change (SE) | P Value |
|--|-----------------------------|---------|
| Age at screening, y                                      |                             |         |
| 50-59  | 2.47 (0.07)                 | <.001   |
| 60-69  | 0.26 (0.06)                 | <.001   |
| 70-79  | Reference                   |         |
| Race/ethnicity   |                             |         |
| White  | Reference                   |         |
| Black  | 4.16 (0.21)                 | <.001   |
| Hispanic   | -2.59 (0.25)                | <.001   |
| American Indian  | 1.17 (0.61)                 | .05     |
| Asian/Pacific Islander                                   | -5.39 (0.25)                | <.001   |
| Unknown  | 0.93 (0.38)                 | .02     |
| Body mass index*   |                             |         |
| <25  | -18.10 (0.08)               | <.001   |
| 25-29.9  | -6.83 (0.07)                | <.001   |
| 30-34.9  | 4.63 (0.09)                 | <.001   |
| ≥35  | Reference                   |         |
| Energy from fat, % (follow-up - baseline)                | 0.08 (0.01)                 | <.001   |
| Fruits and vegetables, servings/d (follow-up - baseline) | 0.06 (0.03)                 | .06     |
| Fiber, g (follow-up - baseline)                          | -0.03 (0.01)                | .001    |
| Visit year   | 0.08 (0.01)                 | <.001   |
| Intervention vs control                                  | -0.37 (0.11)                | .001    |

\*Measured as weight in kilograms divided by height in meters squared.

Skinny on Fat-- Recommendations

*Perspective on Quality & Quantity*

# Optimal Mix of Macronutrients\*

- The Dietary Reference Intakes (DRIs)--
  - 45–65% carbohydrate
  - 20–35% fat
  - 10–35% protein

\*Calorie intake appropriate to weight goals.



# Fat: Quantity and Quantity Recommendations

| AHA  | 2005 Dietary guidelines | Am Diabetes Assoc                                     | Am Cancer Society             |
|--|-------------------------|---|-------------------------------|
| <b>Overall dietary pattern</b>   | <b>Similar</b>          | <b>Similar</b>  | <b>Similar</b>                |
| Healthy weight   | Similar                 | Similar   | Similar                       |
| Normal lipids, blood pressure, glucose   | Beyond the scope        | Similar ABCs-<br><u>A</u> 1c, <u>B</u> P <u>C</u> hol | Emphasis on cancer risk       |
| Physical activity  | Similar                 | Similar   | Similar                       |
| <b>Fat*</b><br><b>&lt; 7% sat, &lt;1% trans fat,</b><br><b>&lt; 300 mg chol.</b> | <b>Similar</b>          | <b>Similar</b>  | <b>Similar</b>                |
| Environment and Policy Issues  | Guides policy           | Health Care systems                                   | Access and environment Issues |

\* Daily Reference Intakes guides the quantity of fat with less focus on percent of total energy from fat. Evidence accumulating with regard to specific fatty acids.

Nutrition Recommendations

# Common Concerns

- Obesity -Risk factor for chronic diseases
- Healthy lifestyle
- Dietary patterns rather than nutrients
- Emphasis on primary prevention

Lichtenstein A et al Circulation 2006; 114:82

Kushi L et al CA Cancer J Clin 2006; 56:254

Wylie-Rosett et al. J Am Diet Assoc 2007;107:1296

# American Heart Association

## Current Scientific Statements & Advisories

### Focus on Dietary Fat or Weight

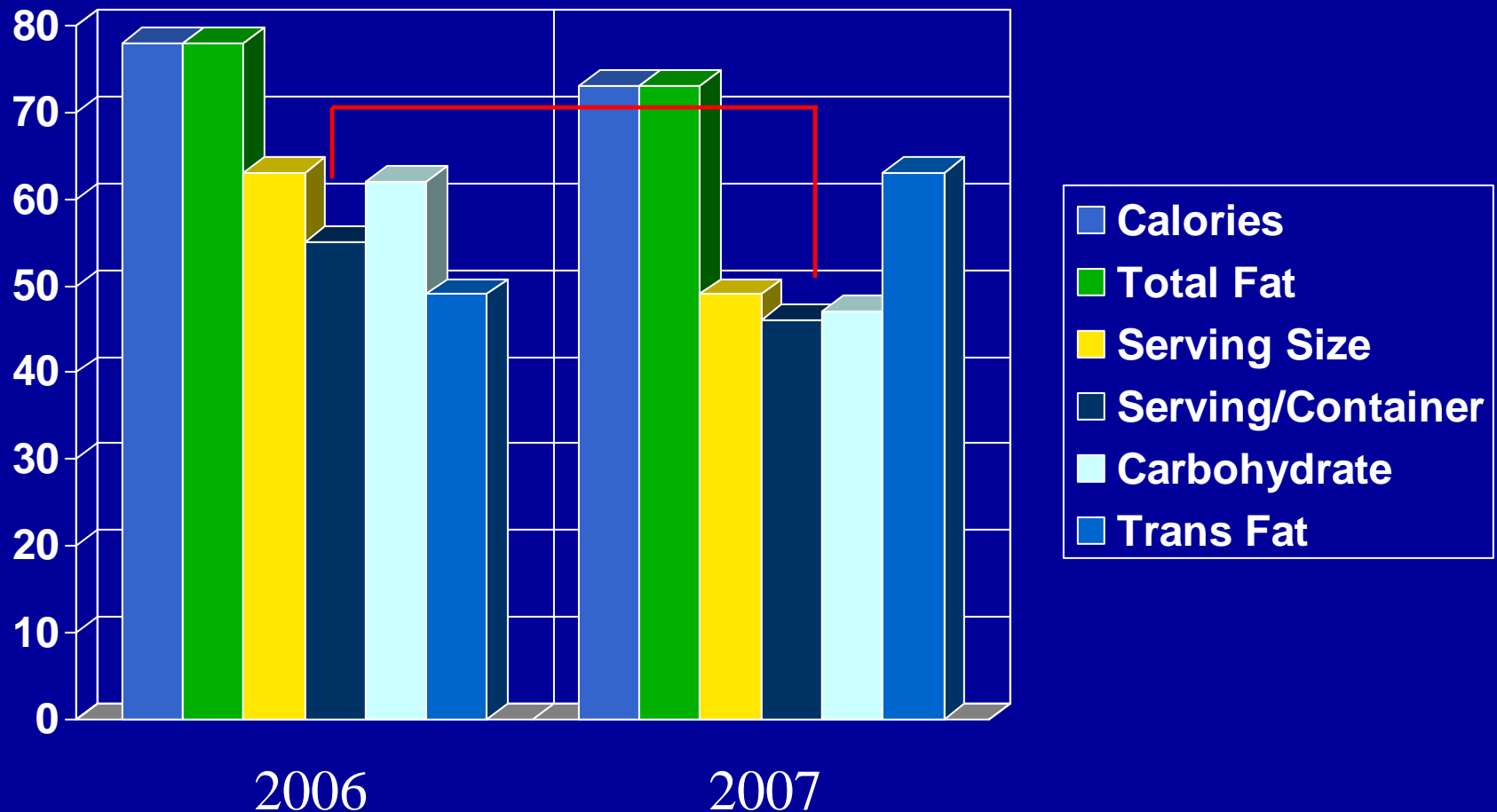
- [Dietary Approach: Prevent/Treat Hypertension](#) 2006
- [Obesity and Cardiovascular Disease](#) 2005
- [Abnormal Blood Lipids: Collaborative Approach](#) 2005
- [Dietary Recommendations: Children/Adolescents](#) 2005
- [Diagnosis/Management: Metabolic Syndrome](#) 2005
- [Overweight in Children and Adolescents](#) 2005
- [Fish, Fish Oil, Omega-3 Fatty Acids & CVD](#) 2002
- [Fat Substitutes and Health](#) 2002

# Skinny on Fat

## Practical Issues

# International Food Industry Council (IFIC) Survey

## Percent Using Food Facts Panel for:



# Portion Control Initiatives

## 100-Calorie Snack Options

- \$210 Million annual sales
- 28% growth in sales 2006-2007

[In Small Packages, Fewer \*\*Calories\*\* and More Profit - New York Times](#)

[USATODAY.com - Food marketers score with portion-controlled \*\*snacks\*\*](#)

[THE 100-CALORIE SNACK | Chicago Tribune](#)

[The 100-Calorie Snack Attack - Newsweek Business - MSNBC.com](#)

# American Heart Association



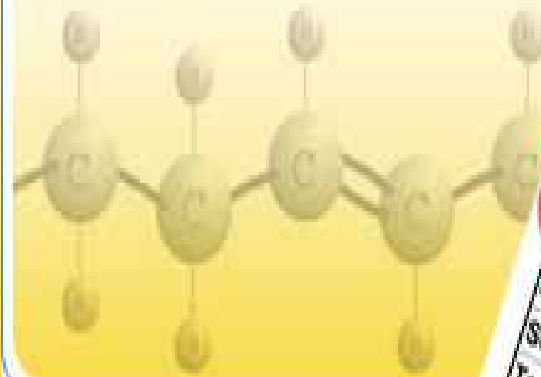
Snack options



# MY *fats* TRANSLATOR

A calculator that translates our fat recommendations into daily limits just for you.

## BEHIND THE LABEL



| Nutrition Facts            |      |
|----------------------------|------|
| Serving Size 1 slice (47g) |      |
| Servings Per Container 8   |      |
| Amount Per Serving         |      |
| Calories 160               |      |
| Calories from Fat 90       |      |
| Total Fat                  | 10g  |
| Saturated Fat              | 2.5g |
| Trans Fat                  | 2g   |
| Cholesterol                | 0mg  |
| Sodium                     | 20mg |



BETTER  
FATS

Monounsaturated fats can have a beneficial effect on your health... when eaten in moderation and when used to replace saturated fats or *trans* fats.

## MONOUNSATURATED *fats*



BETTER  
FATS

Polyunsaturated fats can have a beneficial effect on your health... when eaten in moderation and when used to replace saturated fats or *trans* fats.

## POLYUNSATURATED *fats*

# New York City Website Support for Restaurants



<http://www.citytech.cuny.edu/notransfatnyc/>

# Summary

- **Macronutrient balance**
  - Range of macronutrient distribution
  - Quality of fat and carbohydrate
  - Individualize and focus on food
- **Healthy body weight**
  - Clinical weight control intervention
  - Obesity » public health challenge

# Conclusions

Dietary recommendations are increasingly focusing on obesity and overall dietary pattern. There is greater emphasis on the quality of fat and decreased emphasis on the proportion of calories from fat.