



The New Nutritional Approach to Diabetes, Heart Health, and Brain Health

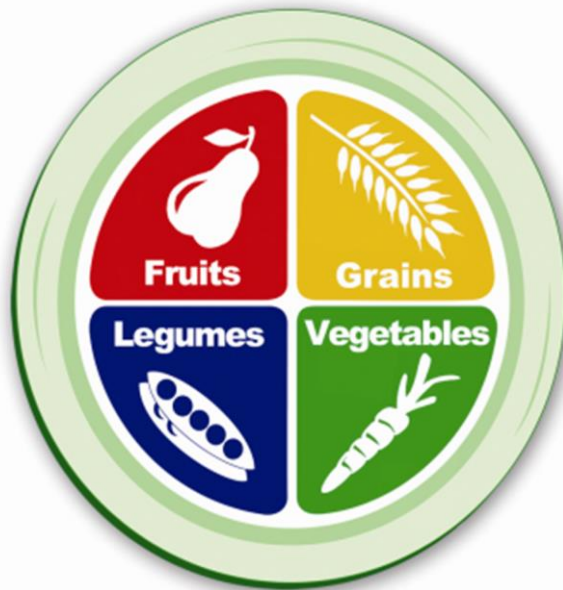


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Lifestyle Heart Trial

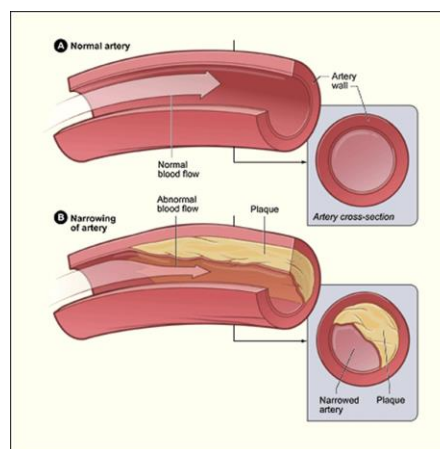
Dean Ornish, M.D.

RCT:

Lifestyle intervention

vs

Usual care



Ornish D. *Lancet*. 1990;336:129-133.

Lifestyle Heart Trial

Intervention

1. Vegetarian foods
(Vegan except for 1 cup/d non-fat dairy and egg white)
2. Half-hour walk daily
3. Manage stress
4. Avoid tobacco

Ornish D. *Lancet*. 1990;336:129-133.

Lifestyle Heart Trial

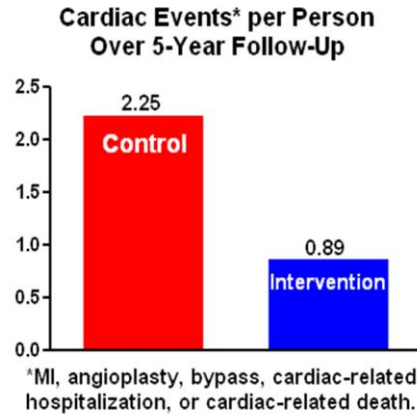
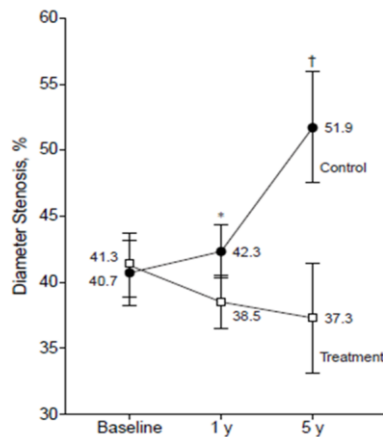
1-year results

	Experimental	Control
Cholesterol	↓24%	↓5%
LDL	↓37%	↓3%
Weight	↓ 22 lbs	↑3 lbs
Reversal	82% of participants	42% of participants

Ornish D. *Lancet*. 1990;336:129-133.

Lifestyle Heart Trial

5-year results



Ornish D. *Lancet*. 1990;336:129-133.

Weight-Control Study

Randomized Control Trial

Two rules:

1. No animal products
2. Minimize oils

No exercise

14-week intervention

Barnard ND, Scallan AR, Turner-McGrievy G, Lanou AJ, Gans J. The effects of a low-fat, plant-based dietary intervention on body weight, metabolism, and insulin sensitivity. *Am J Med*.

Barnard ND, et al. The effects of a low-fat, plant-based dietary intervention on body weight, metabolism, and insulin sensitivity. *Am J Med*. 2005;118:991-997.

Typical Day's Meals

Breakfast

Blueberry pancakes
or Oatmeal with cinnamon and raisins
Half cantaloupe
Rye toast with jam

Lunch

Chunky vegetable chili
Garden salad with sesame dressing

Snack

Banana

Dinner

Lentil soup with crackers
Linguine with artichoke hearts and seared oyster mushrooms
Steamed broccoli

Results

14 weeks

- 13 lbs average weight loss
- Improved insulin sensitivity
- Maintained weight loss for 2 years

Barnard ND, et al. The effects of a low-fat, plant-based dietary intervention on body weight, metabolism, and insulin sensitivity. Am J Med 2005;118:991-997.

Turner-McGrievy et al. A two-year randomized weight loss trial comparing a vegan diet to a more moderate low-fat diet. Obesity 2007;15:2276-81.

Tufts University – 4 Diets

160 participants assigned to 4 diets

1. Low-carb (Atkins)
2. Macronutrient balance (Zone)
3. Caloric restrictions (Weight Watchers)
4. Low-fat vegetarian (Ornish)

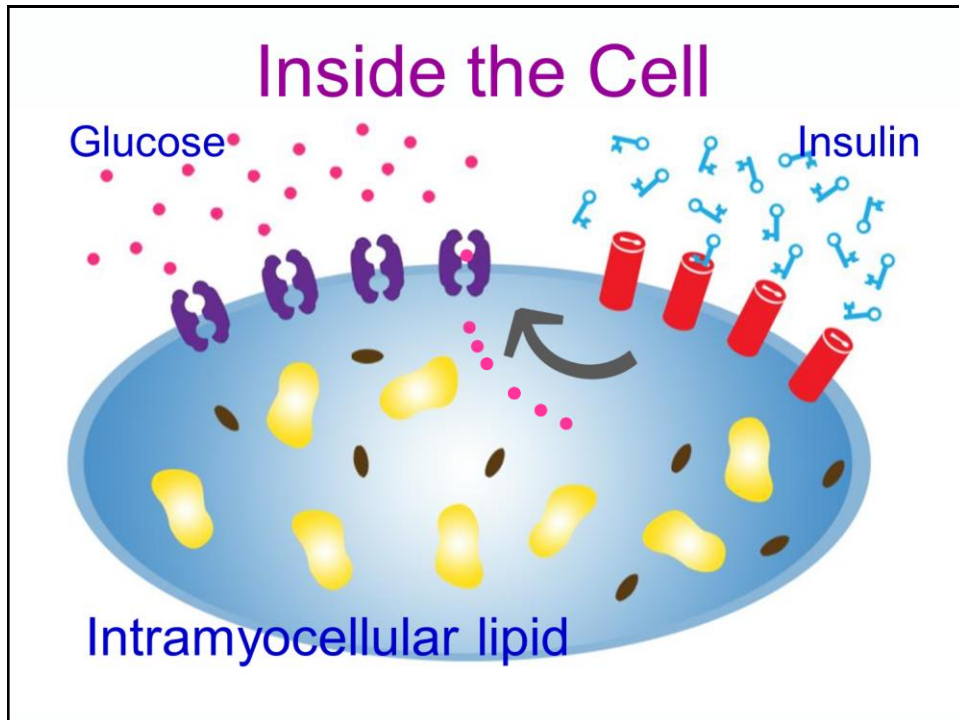
Dansinger ML, et al. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction. *JAMA*. 2005;293:43-53.

Tufts University – 4 Diets

Weight loss in kilograms

1. Low-carb (Atkins) - ↓3.9 kg
2. Macronutrient balance (Zone) - ↓4.9 kg
3. Caloric restrictions (Weight Watchers) - ↓4.6 kg
4. Low-fat vegetarian (Ornish) - ↓6.6 kg

Dansinger ML, et al. Comparison of the Atkins, Ornish, Weight Watchers, and Zone diets for weight loss and heart disease risk reduction. *JAMA*. 2005;293:43-53.



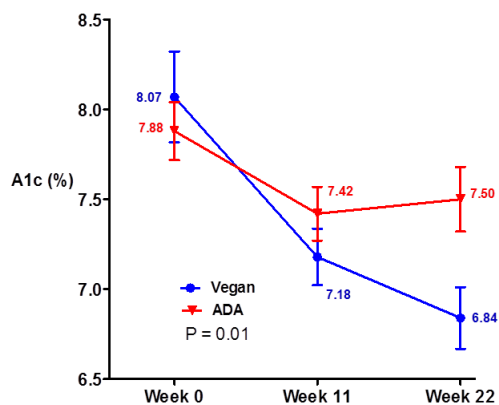
A Plant-Based Diet for Type 2 Diabetes

Randomized control trial
Low-fat vegan diet or ADA guidelines
22-week study with 1-year follow-up

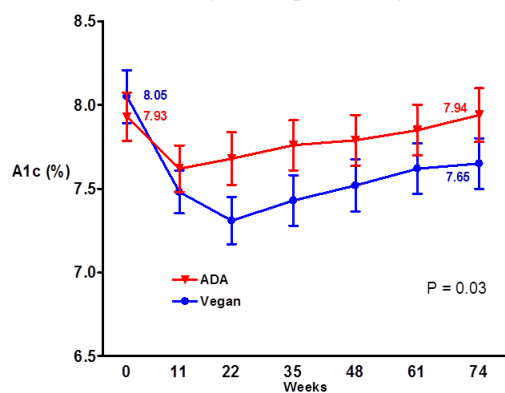
Barnard ND, et al. A low-fat, vegan diet improves glycemic control and cardiovascular risk factors in a randomized clinical trial in individuals with type 2 diabetes. *Diabetes Care*. 2006;29:1777-1783.

Barnard ND, et al. A low-fat vegan diet and a conventional diabetes diet in the treatment of type 2 diabetes: a randomized, controlled, 74-week clinical trial. *Am J Clin Nutr*. 2009;89:1588S-1596S.

Hemoglobin A1c at Baseline and at 11 and 22 Weeks
 Individuals with no medication changes, n = 24 vegan, 33 ADA

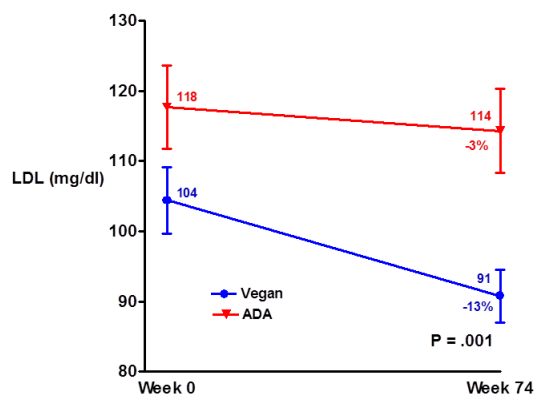


Hemoglobin A1c, All Participants
 (n = 49 vegan, 50 ADA)

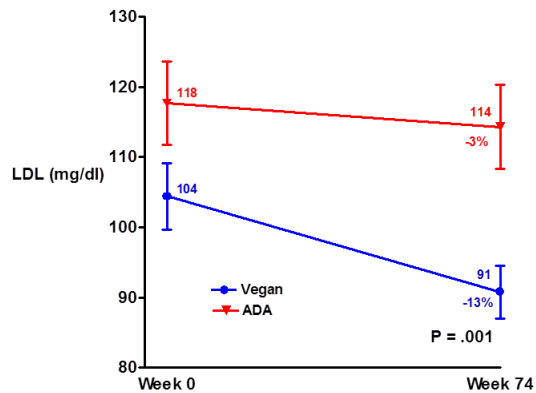


Data shown are last values before any change to hypoglycemic medications carried forward. For between-group comparison of changes from baseline to final values, P = 0.03.

Low Density Lipoprotein
Baseline to 74 Weeks or Last Value before Medication Change
(n = 49 vegan, 49 ADA)



Low Density Lipoprotein
Baseline to 74 Weeks or Last Value before Medication Change
(n = 49 vegan, 49 ADA)



Vance

Lost 60 pounds

Stopped all diabetes medications

A1c fell from 9.5 to 5.3



Nancy

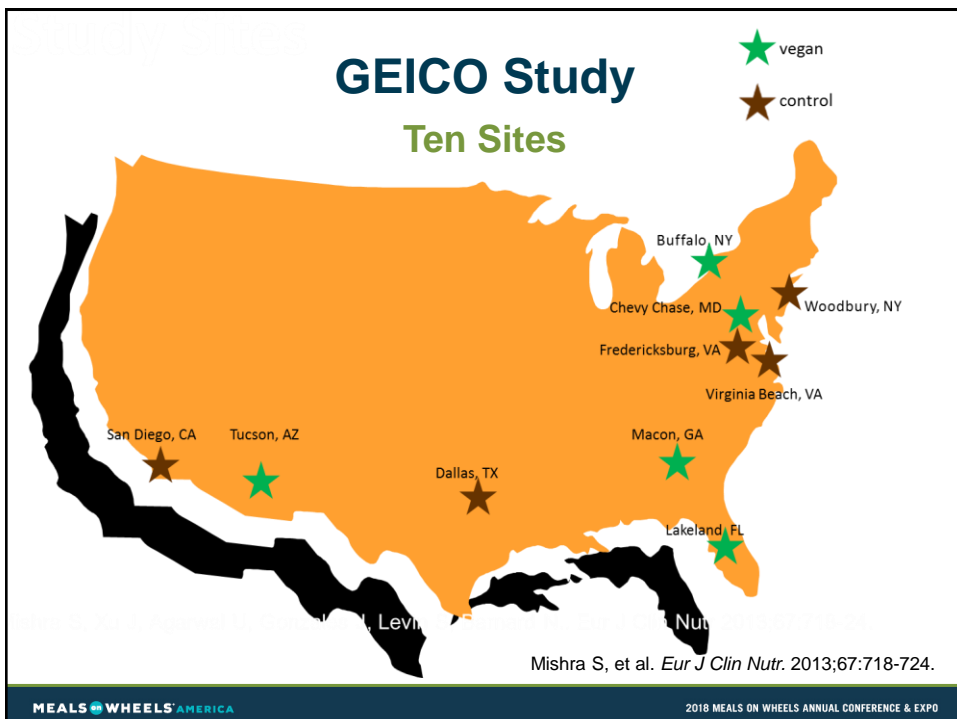
Lost 40 pounds

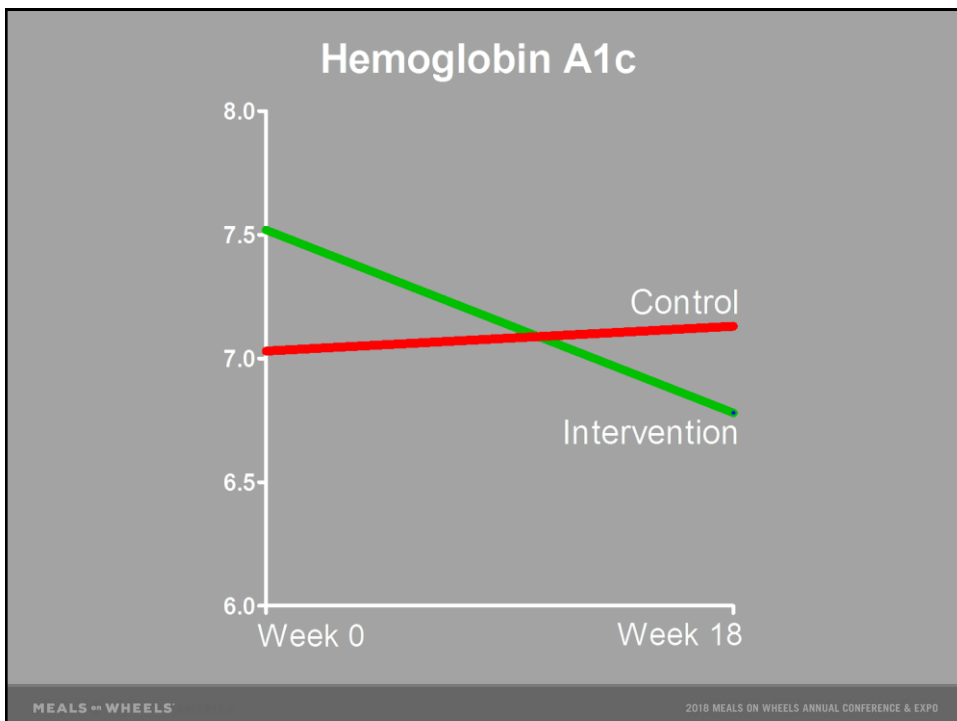
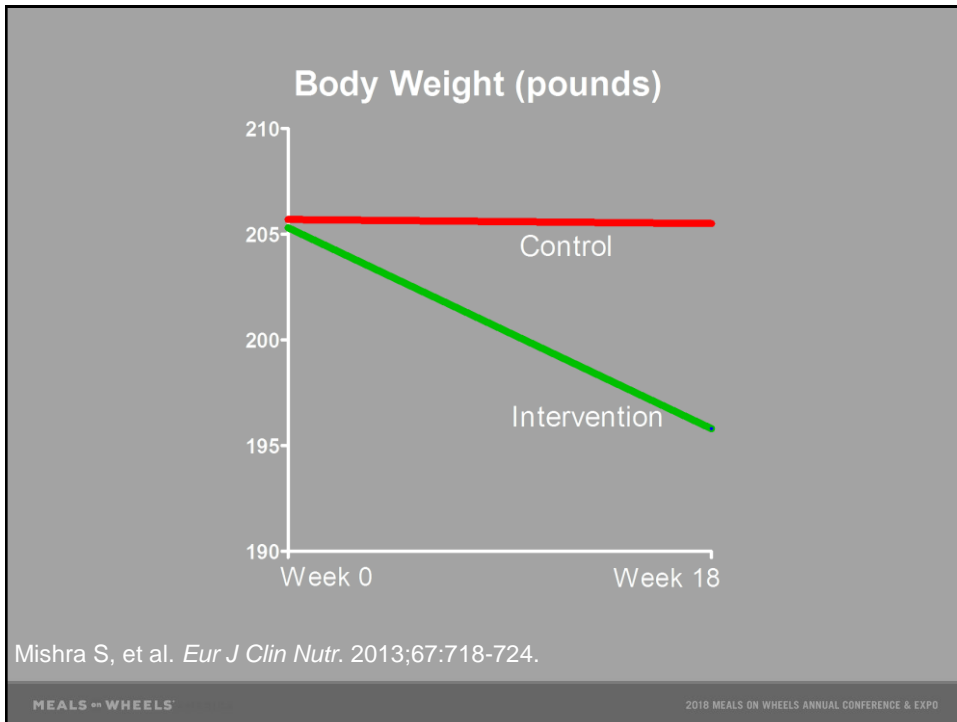
Stopped all diabetes medications

A1c fell from 8.3 to 6.8

Arthritis improved dramatically

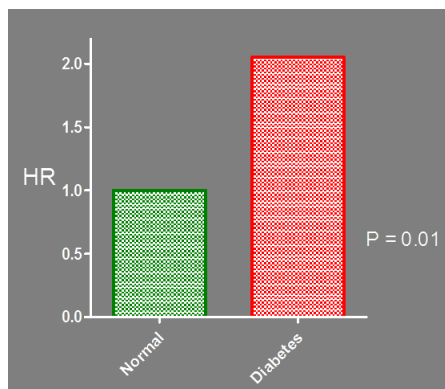






Diabetes and Alzheimer's Risk

1,017 adults
Japan

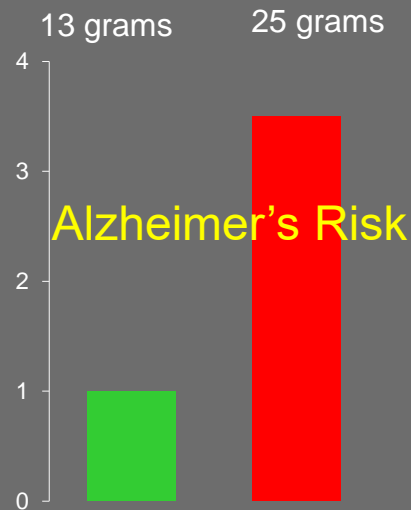


Ohara T. Risk of Alzheimer's disease based on glucose tolerance results 15 years earlier. *Neurology*. 2011;77:1126-1134.

Chicago Health and Aging Project



Saturated Fat

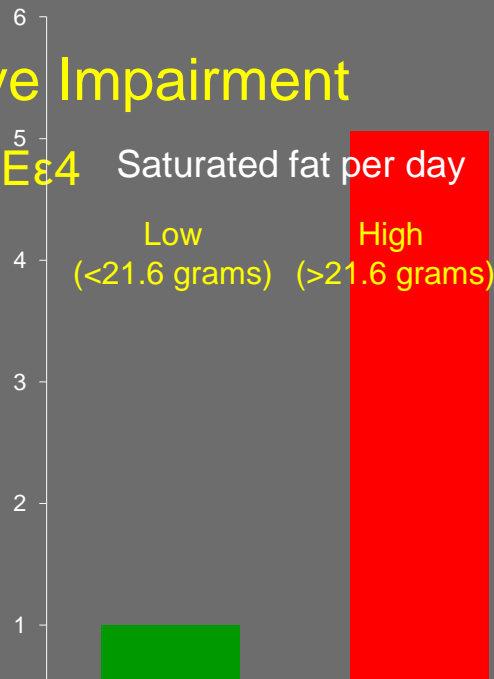


Mild Cognitive Impairment

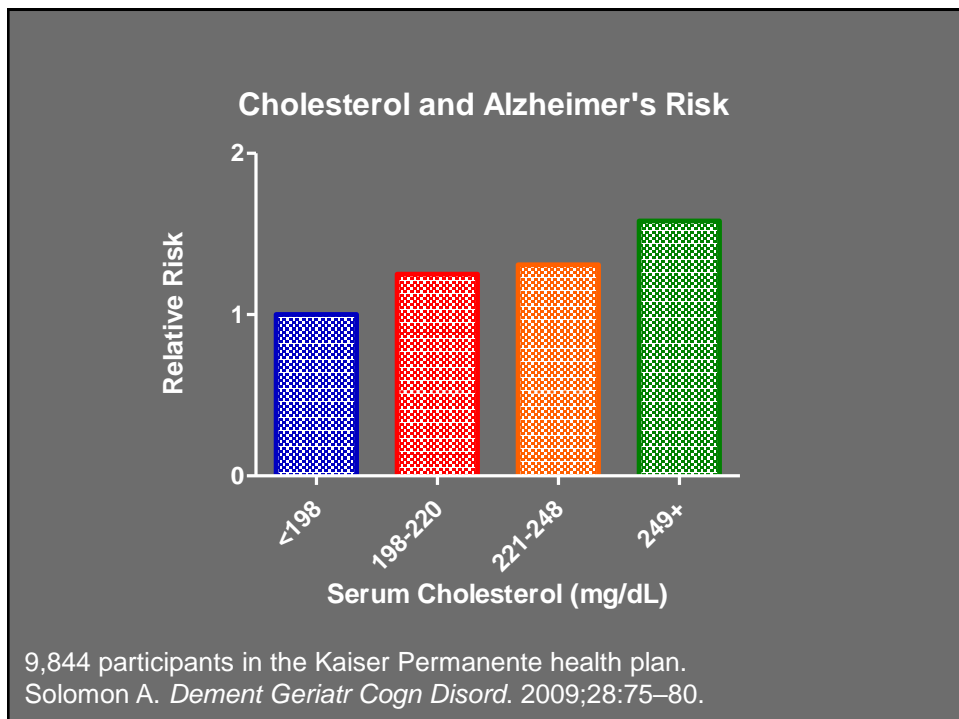
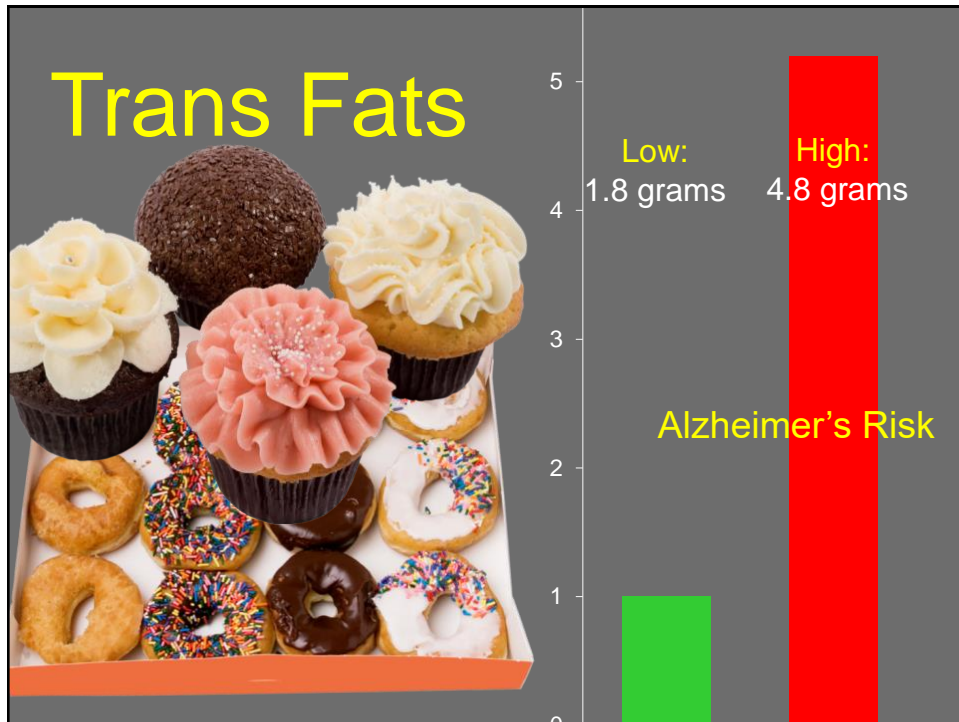
1,341 adults
Average age: 50
Followed 21 years

APOE ϵ 4 Saturated fat per day

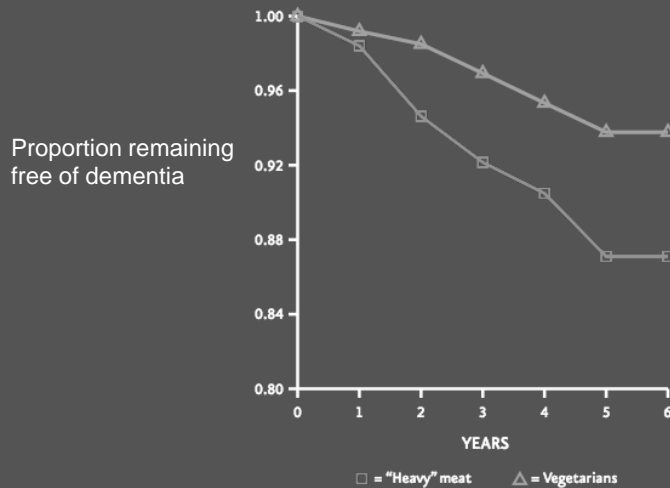
Low (<21.6 grams) High (>21.6 grams)



Eskelinen MH. Cardiovascular risk factors, Aging, and Dementia (CAIDE) study, Finland. *Int J Geriatric Psychiatry*. 2008; 23:741–747.



Meat vs. Plant-Based Diets



Loma Linda University, 272 participants
Giem P. Neuroepidemiology. 1993;12:28-36.

Case Study

Table 1

Anthropomorphic, laboratory, and clinical findings by date.

Measure	September 2012	January 2013	October 2013	September 2014
Body mass index (kg/m^2)	26	22	21	21
Blood pressure (mmHg)	140/80	112/70	126/72	124/72
Total cholesterol (mg/dL)	234	148	125	138
Triglycerides (mg/dL)	165	155	126	120
HDLc (mg/dL)	43	34	27	36
LDLc (mg/dL)	158	83	73	78
Functional capacity	Walk 1-2 blocks	Walk 1 mile	Jog 2 miles	Jog 4+ miles

HDLc: high-density lipoprotein cholesterol; LDLc: low-density lipoprotein cholesterol.

Massera D, et al. A whole-food plant-based diet reversed angina without medications or procedures. *Case Rep Cardiol*. Published online Feb 10, 2015.

Take Home Message

- Reversal of heart disease
- Weight loss
- Improved symptoms related to diabetes
- Improved brain health
- Foods that look and taste great!

