KU SCHOOL OF MEDICINE WICHITA
The University of Kansas

Lifestyle Changes in a Dangerous World: Prescription for Weight Loss

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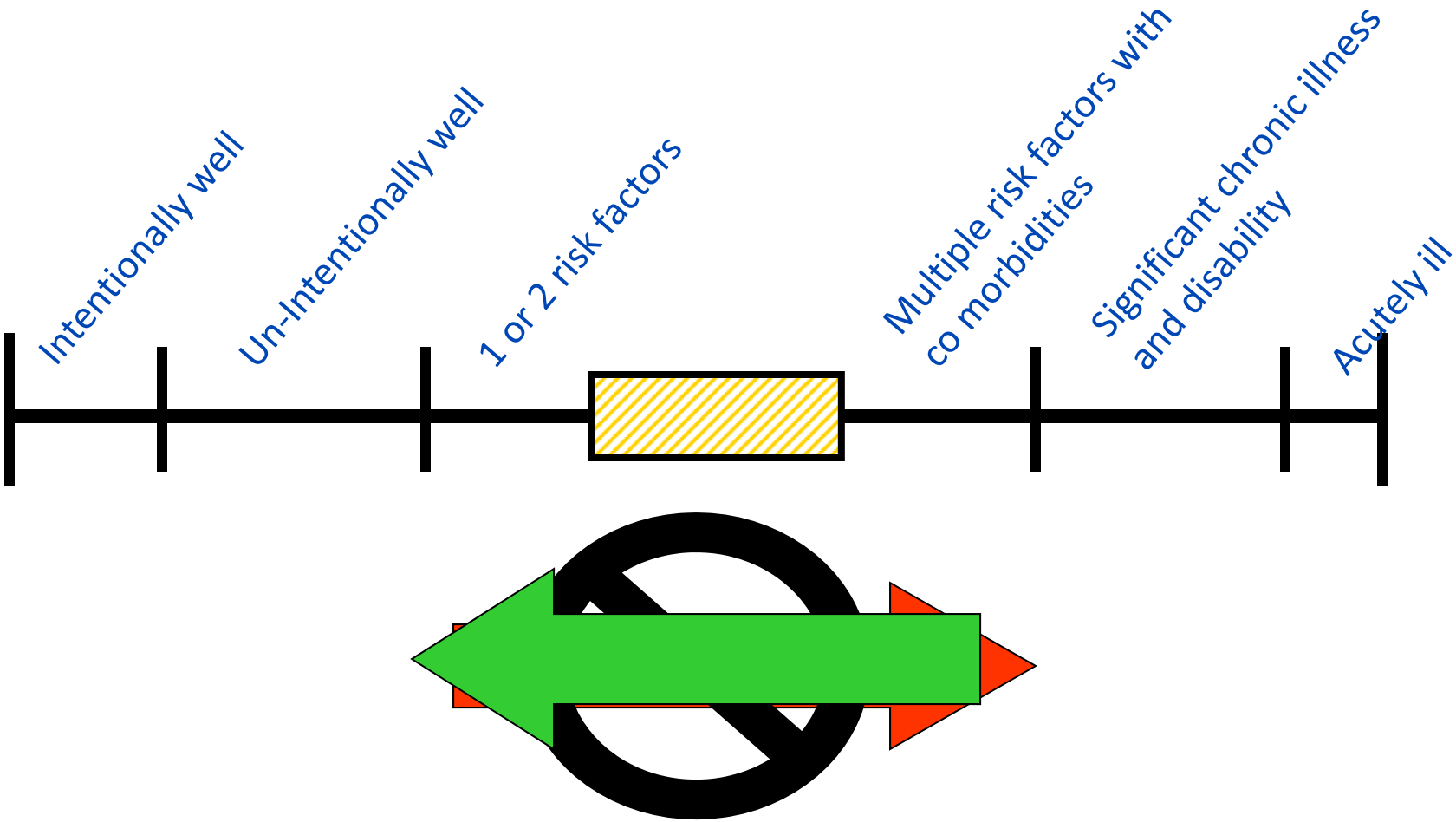
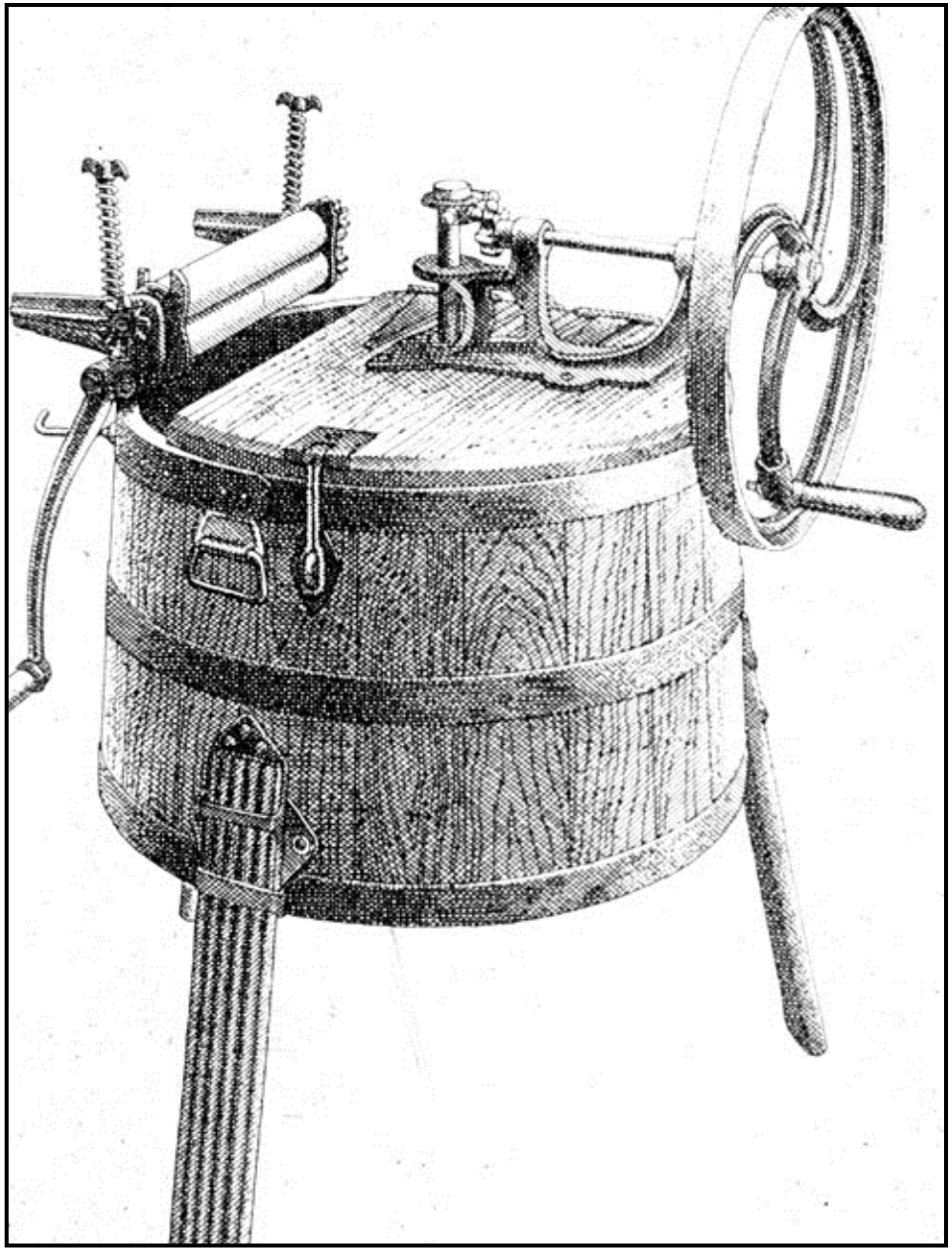
Basic Philosophy of Health and Wellness

Where is the interface between wellness and illness?

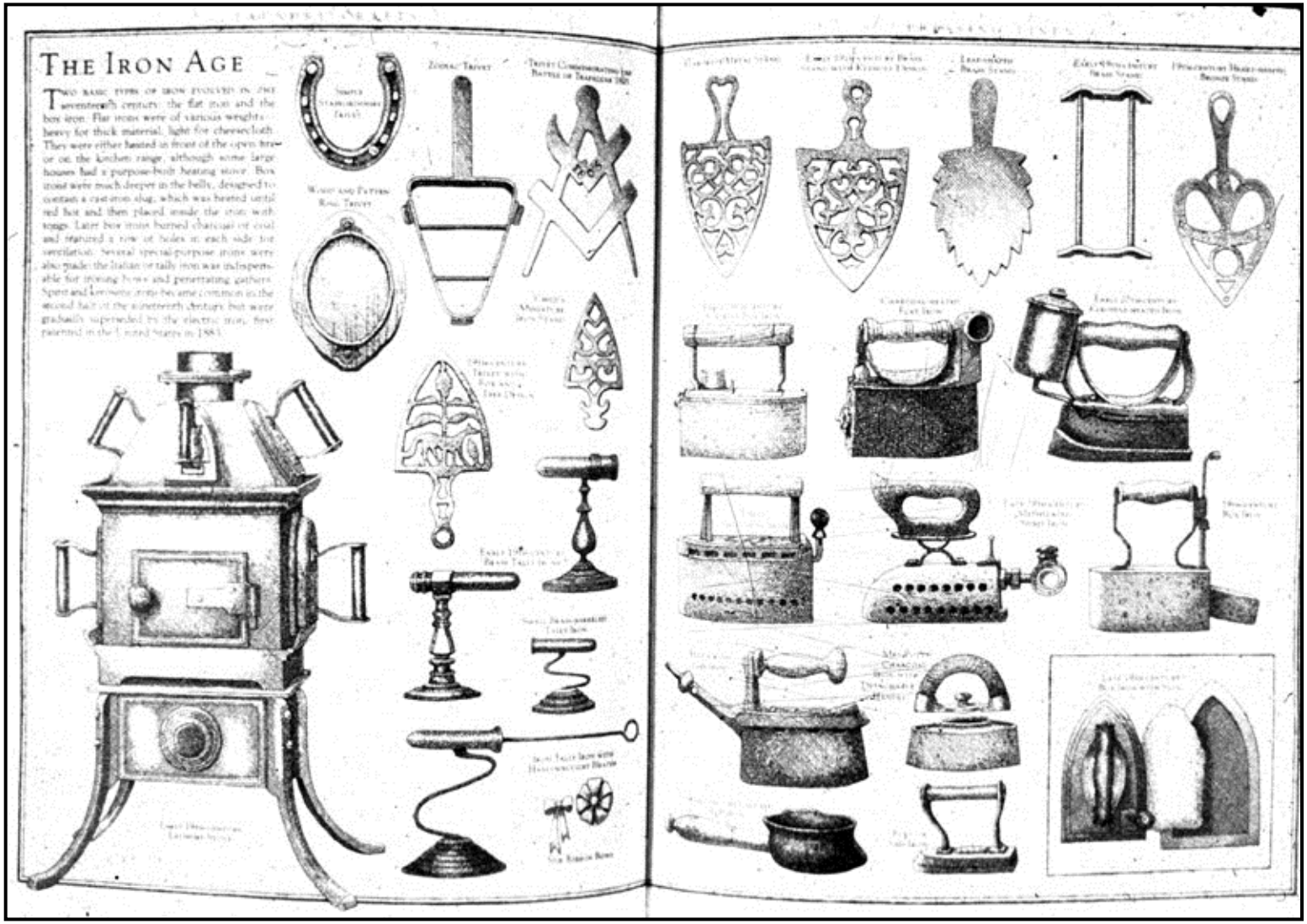


Looking Back at America and American Healthcare Over the Past 50 Years



The Iron Age

Two basic types of iron evolved in the seventeenth century: the flat iron and the box iron. Flat irons were of various weights—heavy for thick material, light for cheesecloth. They were either heated in front of the open fire or on the kitchen range, although some large houses had a purpose-built heating stove. Box irons were much deeper in the bells, designed to contain a cast-iron slug, which was heated until red hot and then placed inside the iron with tongs. Later box irons burned charcoal or coal and featured a row of holes in each side for ventilation. Several special-purpose irons were also made: the Italian or tally iron was indispensable for ironing bows and penetrating gathers. Spirit and kerosene irons became common in the second half of the nineteenth century but were gradually superseded by the electric iron, first patented in the United States in 1883.



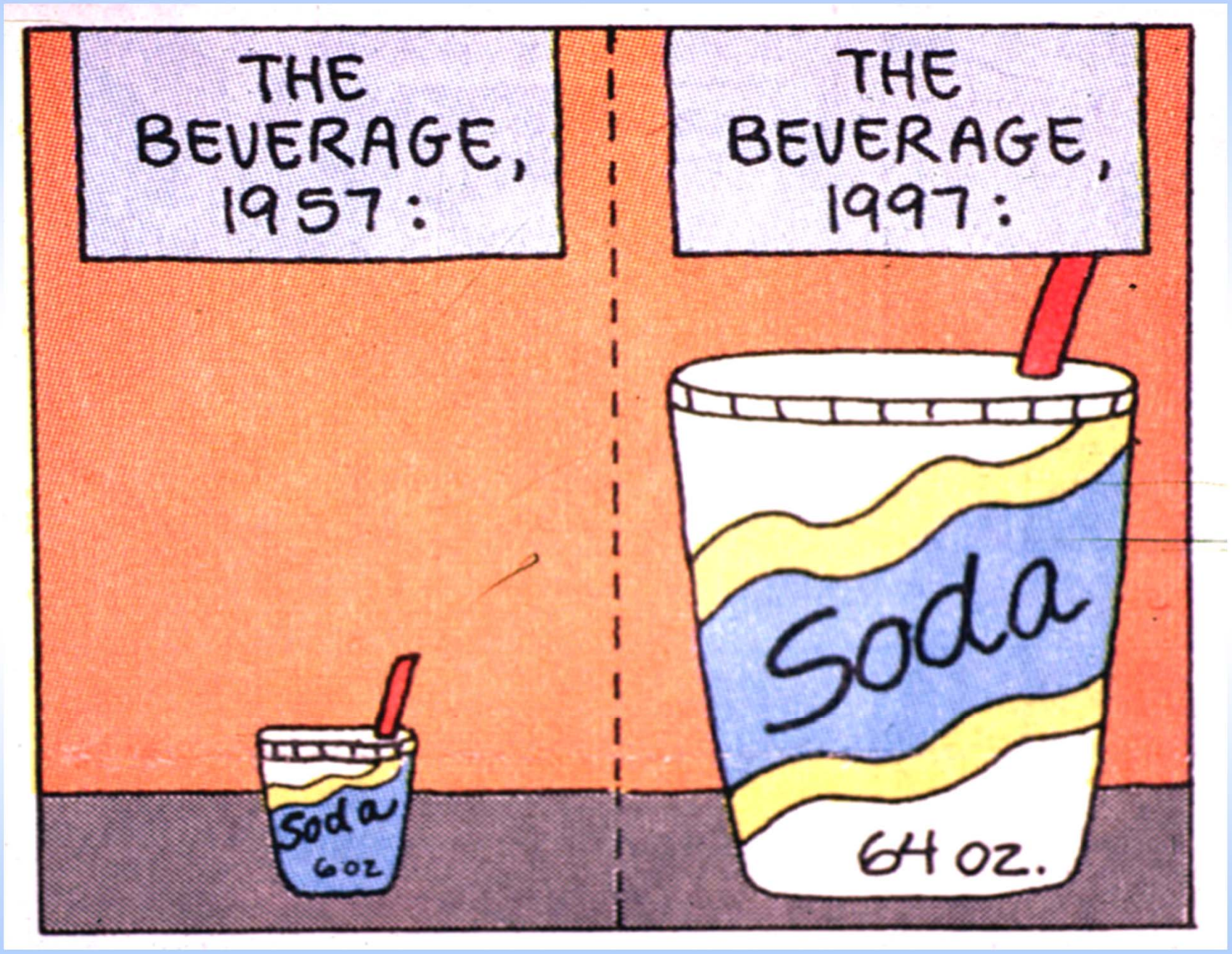
Why Are Americans Overweight?

1900

- Approximately 10% Overweight
- Physically Active
- Less Dietary Fat
- More Complex Carbohydrates

Today

- Over 68% Overweight
- 75-85% Less Physical Activity
- 31-35% More Dietary Fat
- 40% Fewer Complex Carbohydrates (i.e., vegetables, fruits, legumes, cereals & grains)


THE BEVERAGE, 1957:
Soda
6 oz
THE BEVERAGE, 1997:
Soda
64 oz.

Now

Then

“Genetics loads the gun; the environment pulls the trigger.”

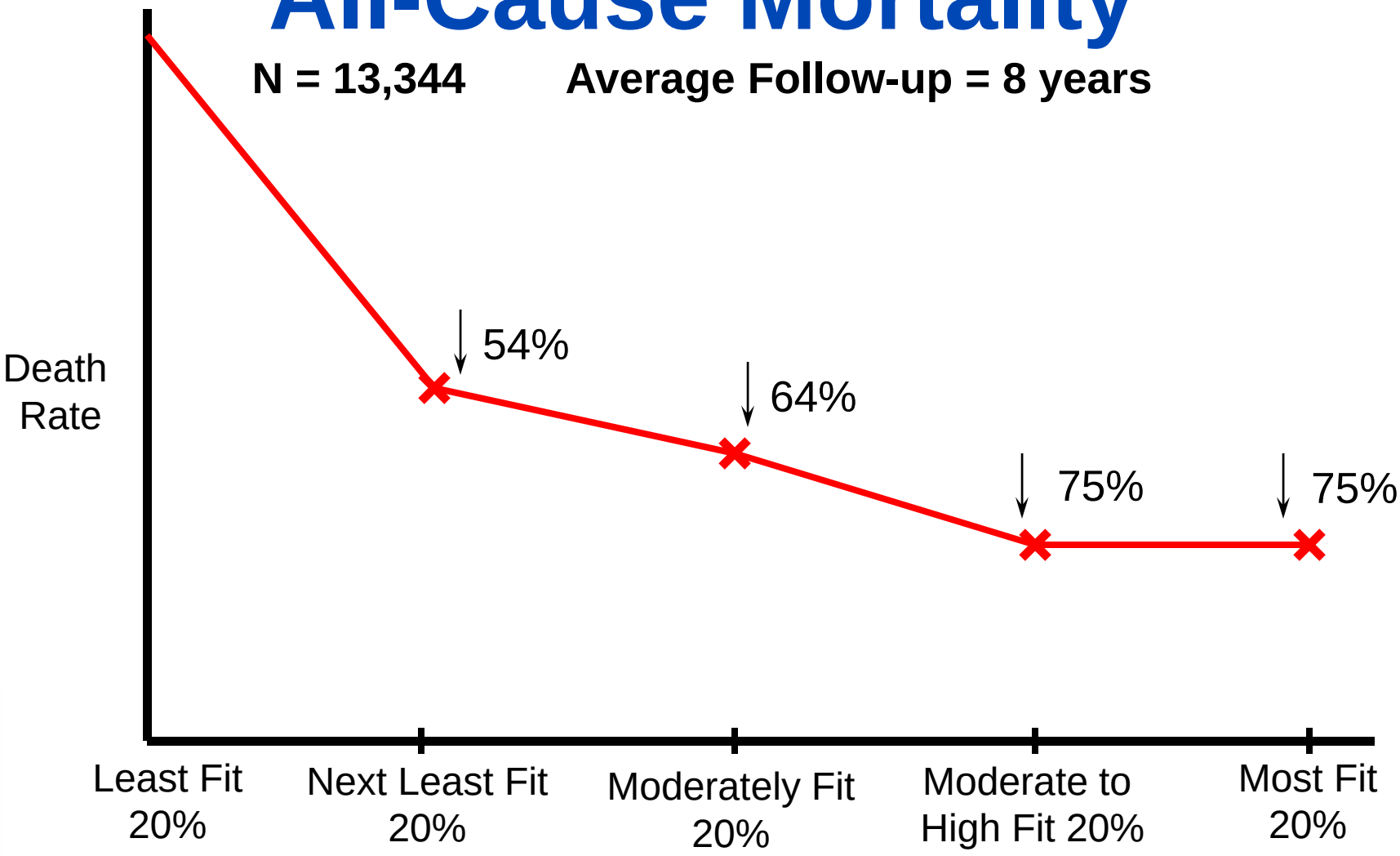
George Bray

Fritos
Doritos
HERSHEY'S
Coca-Cola
DOTS

Lucky for us that there are more dogs in America that need walking than there ever have been before!

44

Physical Fitness and All-Cause Mortality

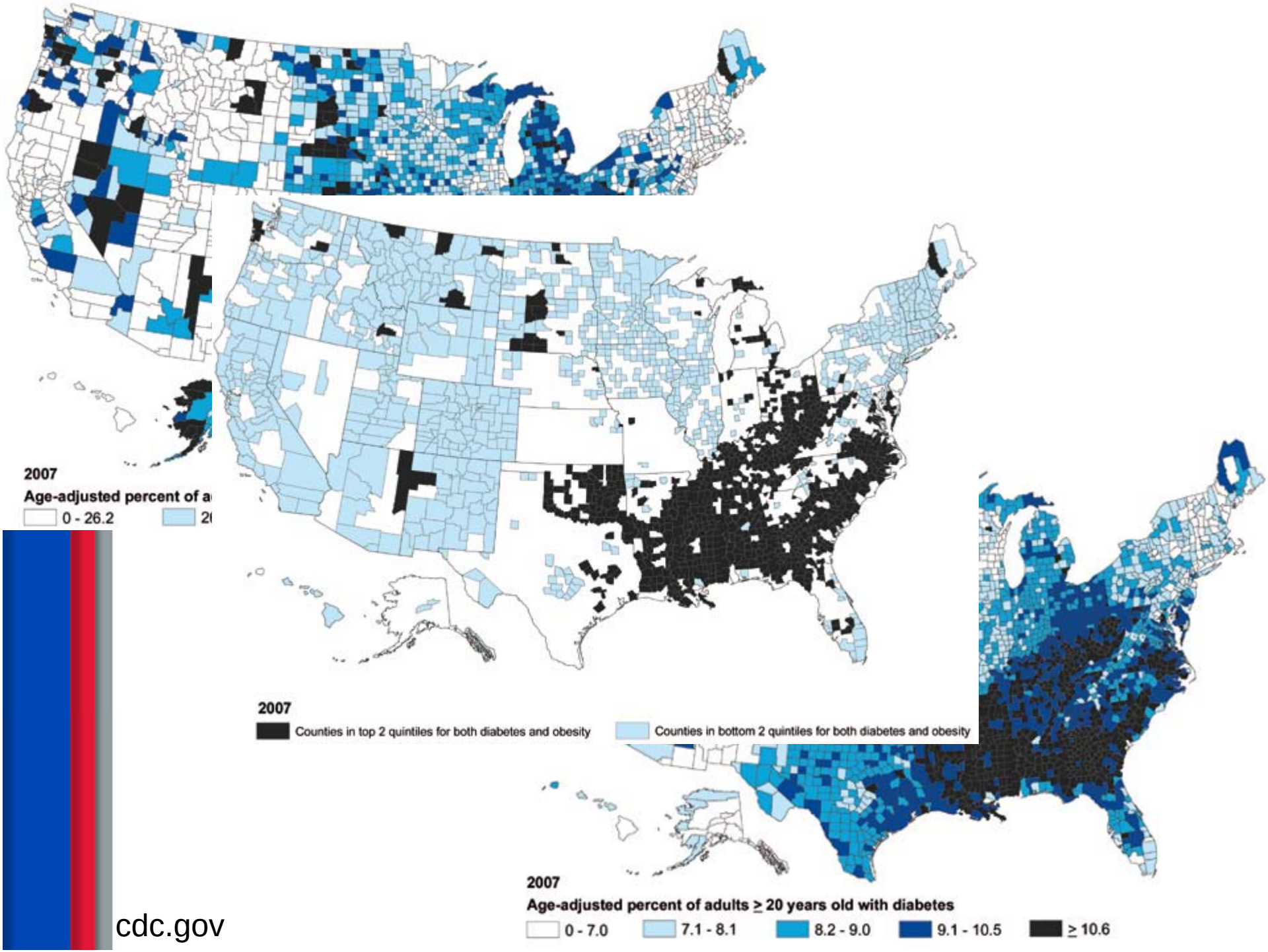


JAMA 1989;262:2395-2401

Table 2. Actual Causes of Death in the United States in 1990 and 2000

Actual Cause	No. (%) in 1990*	No. (%) in 2000
Tobacco	400 000 (19)	435 000 (18.1)
Poor diet and physical inactivity	300 000 (14)	400 000 (16.6)
Alcohol consumption	100 000 (5)	85 000 (3.5)
Microbial agents	90 000 (4)	75 000 (3.1)
Toxic agents	60 000 (3)	55 000 (2.3)
Motor vehicle	25 000 (1)	43 000 (1.8)
Firearms	35 000 (2)	29 000 (1.2)
Sexual behavior	30 000 (1)	20 000 (0.8)
Illicit drug use	20 000 (<1)	17 000 (0.7)
Total	**1 060 000** (50)	**1 159 000** (48.2)

*Data are from McGinnis and Foege.[1] The percentages are for all deaths.


2007
Age-adjusted percent of a
0 - 26.2
2007
Counties in top 2 quintiles for both diabetes and obesity
Counties in bottom 2 quintiles for both diabetes and obesity
2007
Age-adjusted percent of adults ≥ 20 years old with diabetes
0 - 7.0
7.1 - 8.1
8.2 - 9.0
9.1 - 10.5
≥ 10.6

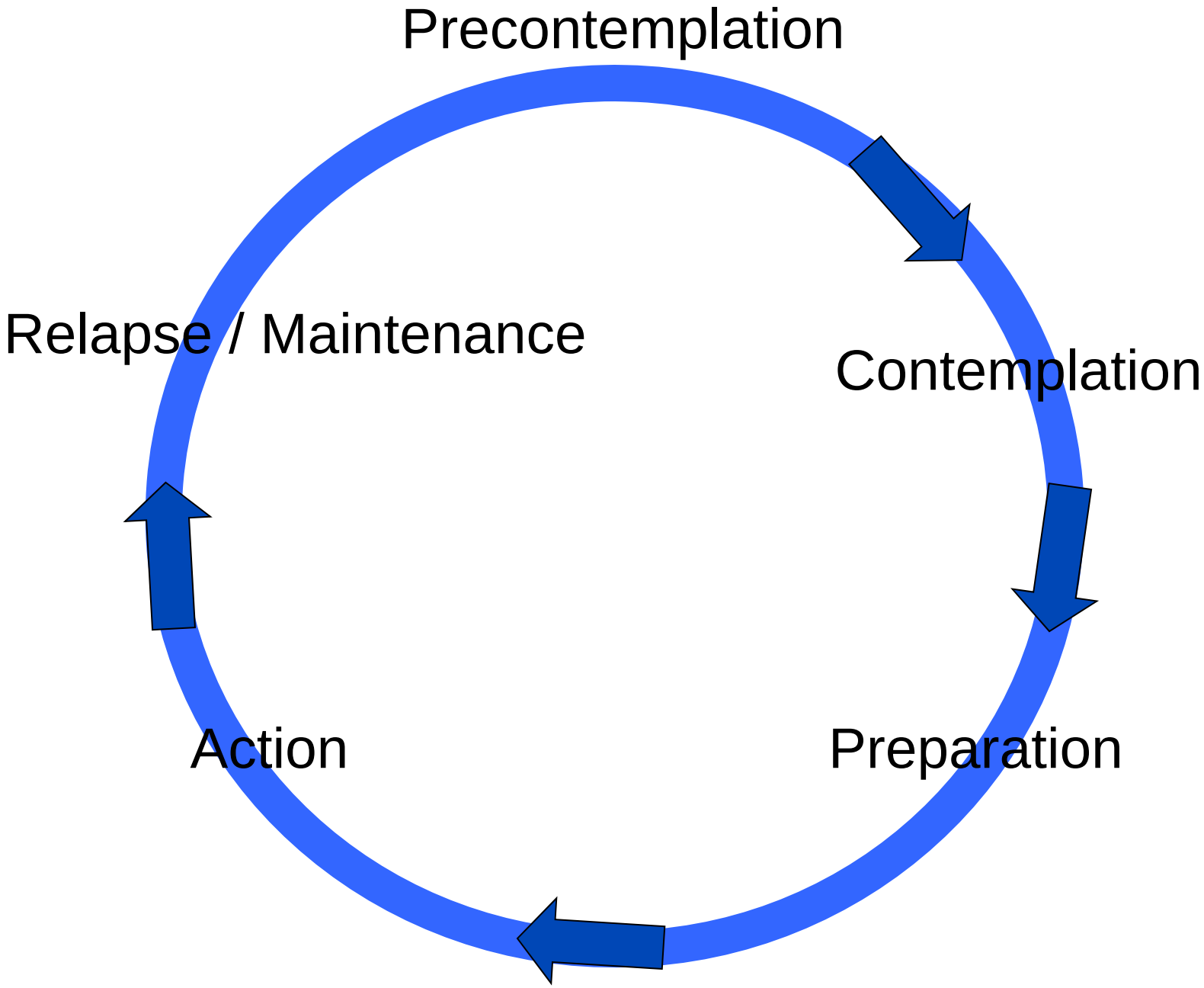
cdc.gov

We Know We Have a Problem…What Can We Do About It?

- Increase exercise
- Prevent weight gain
- Treat or prevent co-morbidities early
- Reverse co-morbidities when possible

Elements Needed for Lifestyle Success

- Long-term vision
- Supportive environments - “places”
- Belief in your own ability to change
- The skill to make it happen



Prochaska's "Stages of Change"

Self-Efficacy (Skill Building)

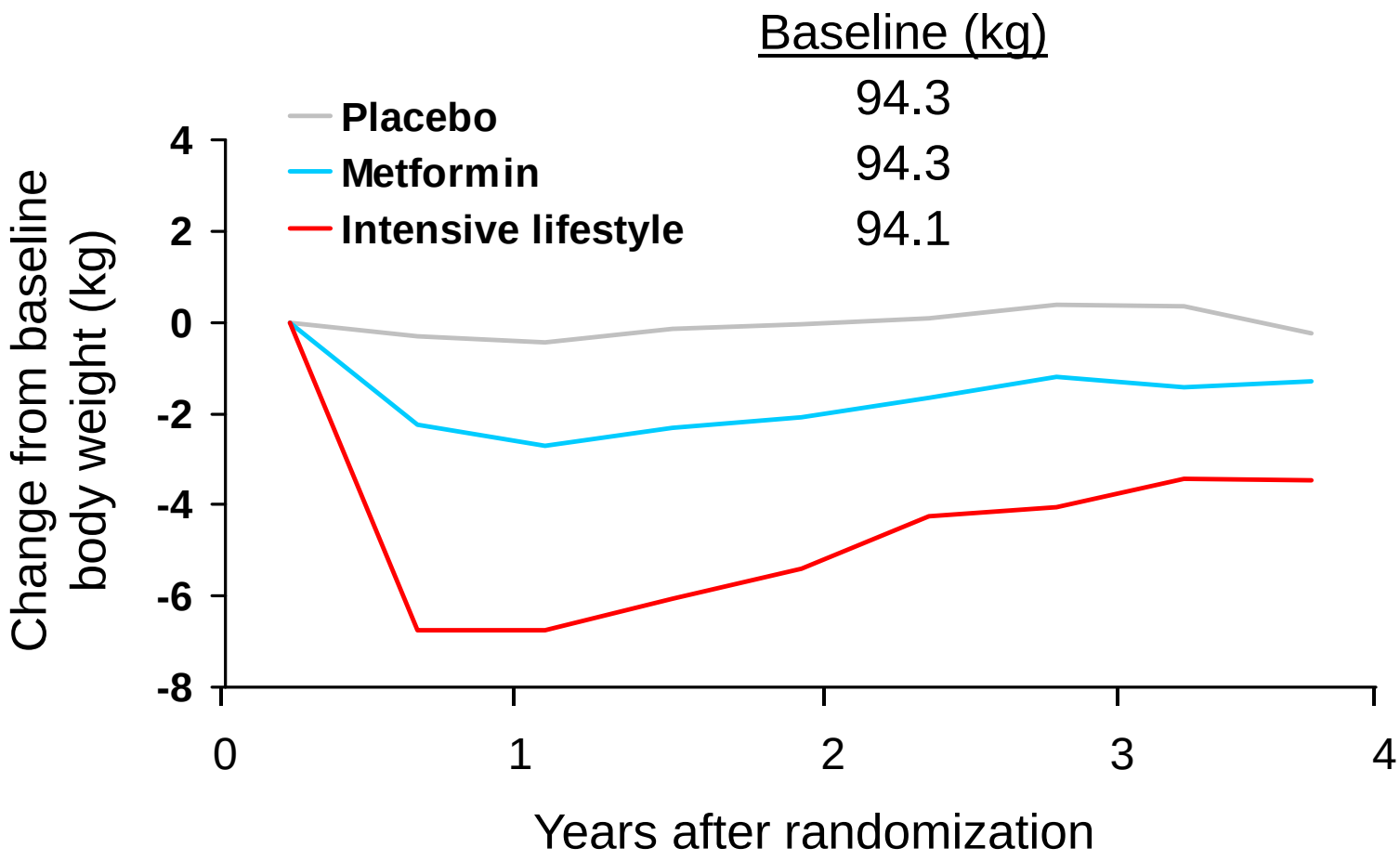
- Bandura's theory of self-efficacy (a part of the theory of reasoned action).
  - If we take a small successful step this promotes taking another small step. Each successful step then builds confidence and allows and promotes further action.
  - On the other hand repeated failures to accomplish unrealistic or over ambitious goals often stifle the willingness to keep trying and damage the belief that success is possible.

Perry CL, et al. Health Behav and Health Educ. San Francisco:Jossey-Bass Publ; 1990.

Diabetes Prevention Program (DPP)

- 3234 overweight patients with IGT followed for 3 years
  - 45% minorities
  - Nl FPG, increased PPG
- 29% of standard advice group developed diabetes
- Intervention diet & exercise group
  - Target 7% weight loss
  - Target exercise 150 minutes/week
  - New diabetes was 14%; A RRR 58%!
- Metformin (Glucophage®) 850 mg po bid produced a RRR 31%

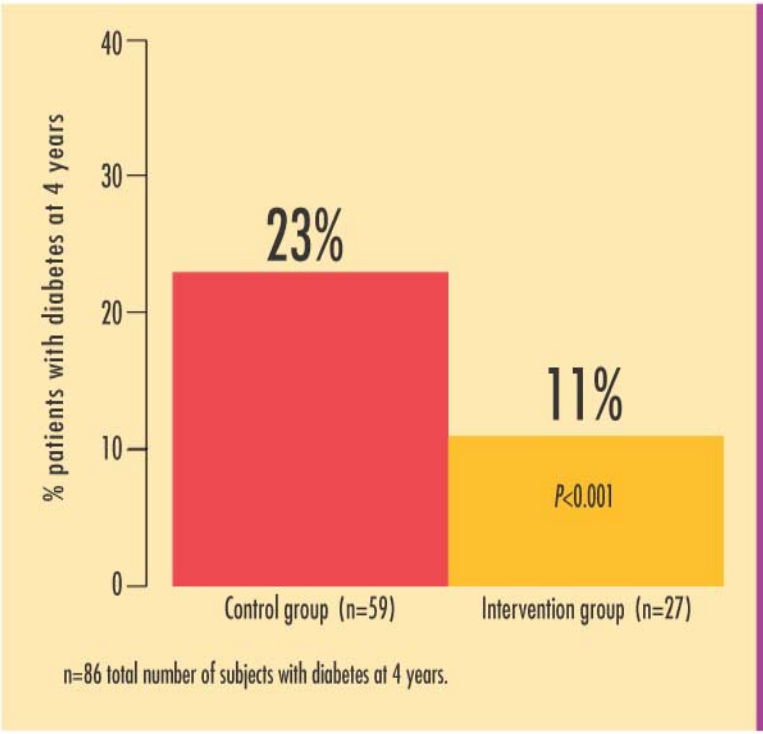
Diabetes Prevention Program: Change in Body Weight



The Diabetes Prevention Program Research Group. *N Engl J Med.* 2002;346:393.

Positive Effects of Weight Loss on Type 2 Diabetes

–Modest weight loss of 5% yields significant results



58%

REDUCTION IN THE DEVELOPMENT OF TYPE 2 DIABETES WITH WEIGHT LOSS AND LIFESTYLE CHANGES

Finnish Diabetes Prevention Study. Tuomilehto J et al. *NEJM* 344:1343 (2001)

Long-term Weight Loss and Maintenance

- There is a great deal of evidence that weight loss is a key element in the prevention of chronic illness as well as in the stabilization or reversal of conditions like diabetes and hypertension.
- An increasing body of research points to the behaviors required to maintain significant weight loss over time.
- Consistency, accountability, self-monitoring, low-fat eating and physical activity are among the variables that predict long-term success.

Wing RR, Phelan S. Am J Clin Nutr. 2005 Jul;82(1 Suppl):222S-225S.

Key Research-based Elements for Obesity Treatment

Processes

1. Attendance and Phone Calls
2. Daily Record Keeping

Procedures

1. Minimum 2,000 PA calories per week
2. Minimum 35 servings of V/F per week, including legumes
3. Use of Meal Replacements

   Weight Loss: Minimum 35 per week

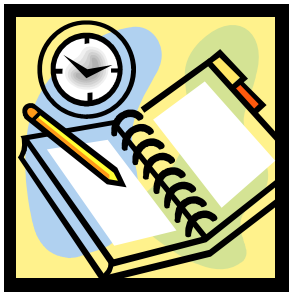
   Maintenance: Minimum 14 per week

Attendance: Accountability is Critical

- The major finding of a review of 105 studies indicated that the amount of treatment in terms of duration and quantity was the most important aspect in determining successful weight management.

Bennett GA. Behavior therapy for obesity: a quantitative review of the effects of selected treatment characteristics on outcome. *Behav Ther* 1986;17:554-562

Daily Record Keeping



"It has become abundantly clear that efforts to help clients become the best self-monitors they can be may prove critical to helping them lose weight and maintain weight losses."

Boutelle KN, Kirschenbaum DS.*Obes Res* 1998;6:219-224

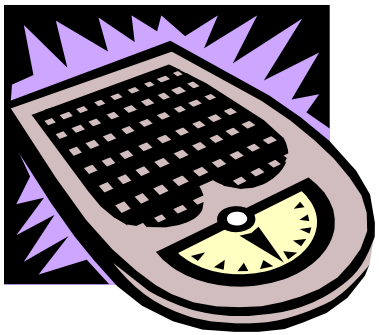
"…self-monitoring, and perhaps 'obsessive-compulsive self-regulation,' are necessary for successful weight control."

Baker RC, Kirschenbaum DS. Self-monitoring may be necessary for successful weight control. Behav Ther. 1993;24:377-394.

Physical Activity: National Weight Control Registry

N = 3,683

Those keeping off 30 lbs. or more (current average is 71 lbs.) for an average of 5.8 years, average 2,621 kcals per week of physical activity.



Catenacci VA, Ogden LG, Stuht J, Phelan S, Wing RR, Hill JO, Wyatt HR. *Obesity* 2008;16:153-161.

American Cancer Society

10 year study, N = 80,000

The two variables that *best predicted success* in weight management:

- High levels of physical activity
- More than 20 servings of vegetables per week

Kahn HS, Tatham LM, Rodriguez C, Calle EE, Thun MJ, Heath CW Jr.*Am J Public Health* 1997;87:747-754

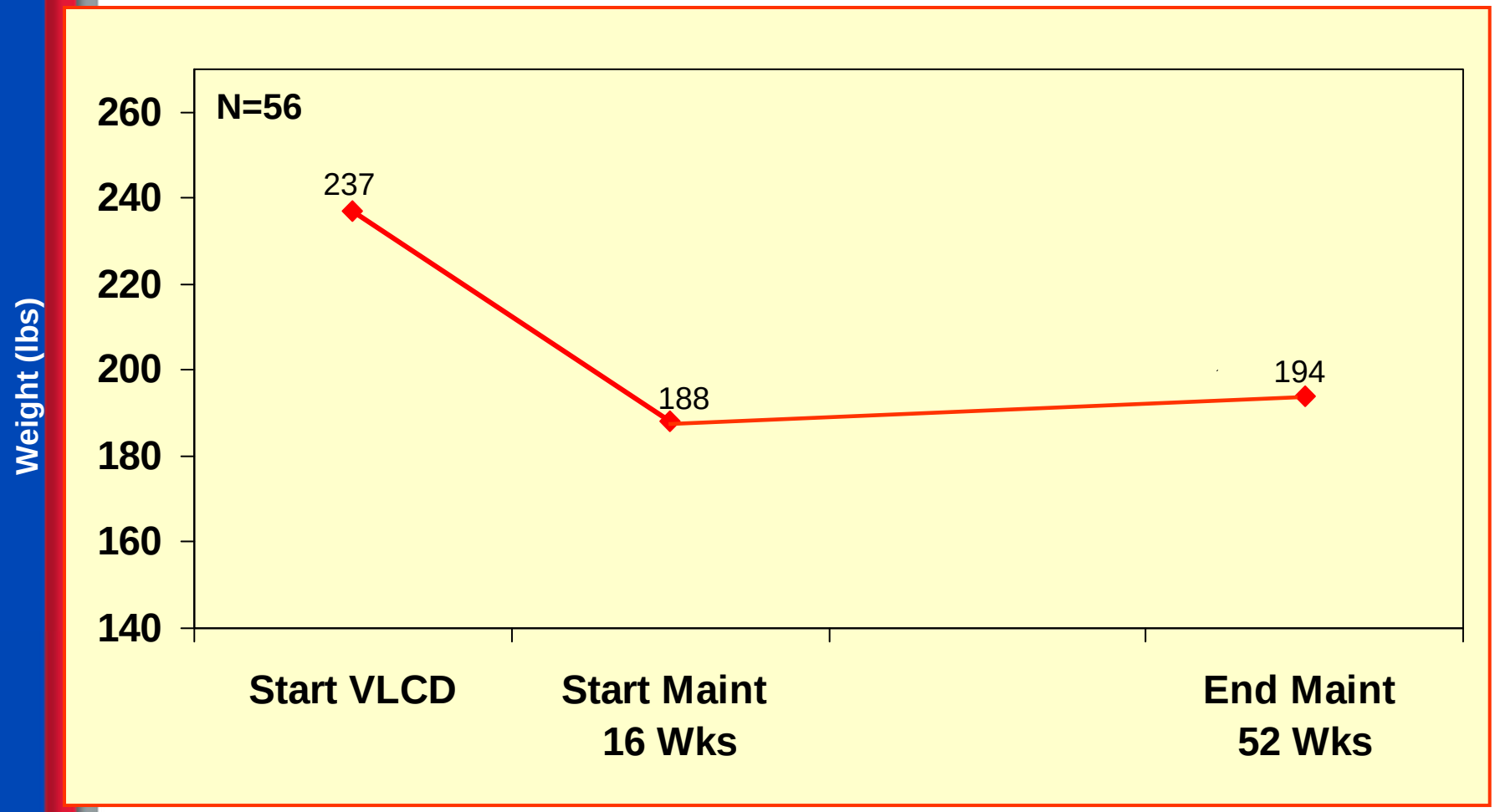
Ten-year Self-management of Weight Using a Meal Replacement Diet Plan

After 10 years, <u>those using meal replacements weighed 32.6 pounds less</u> than matched controls who did not use meal replacements.

No other treatment was given and no meetings occurred with the researchers during this time.

Blackburn GL, Rothacker D. Obes Res 2003;11:A103.

One-Year Weight Maintenance Using Meal Replacements



LeCheminant JD, Jacobsen DJ, Hall MA, Donnelly JE.. *J Am Coll Nutr* 2005;24:347-353

If it’s that easy, then what’s the problem?

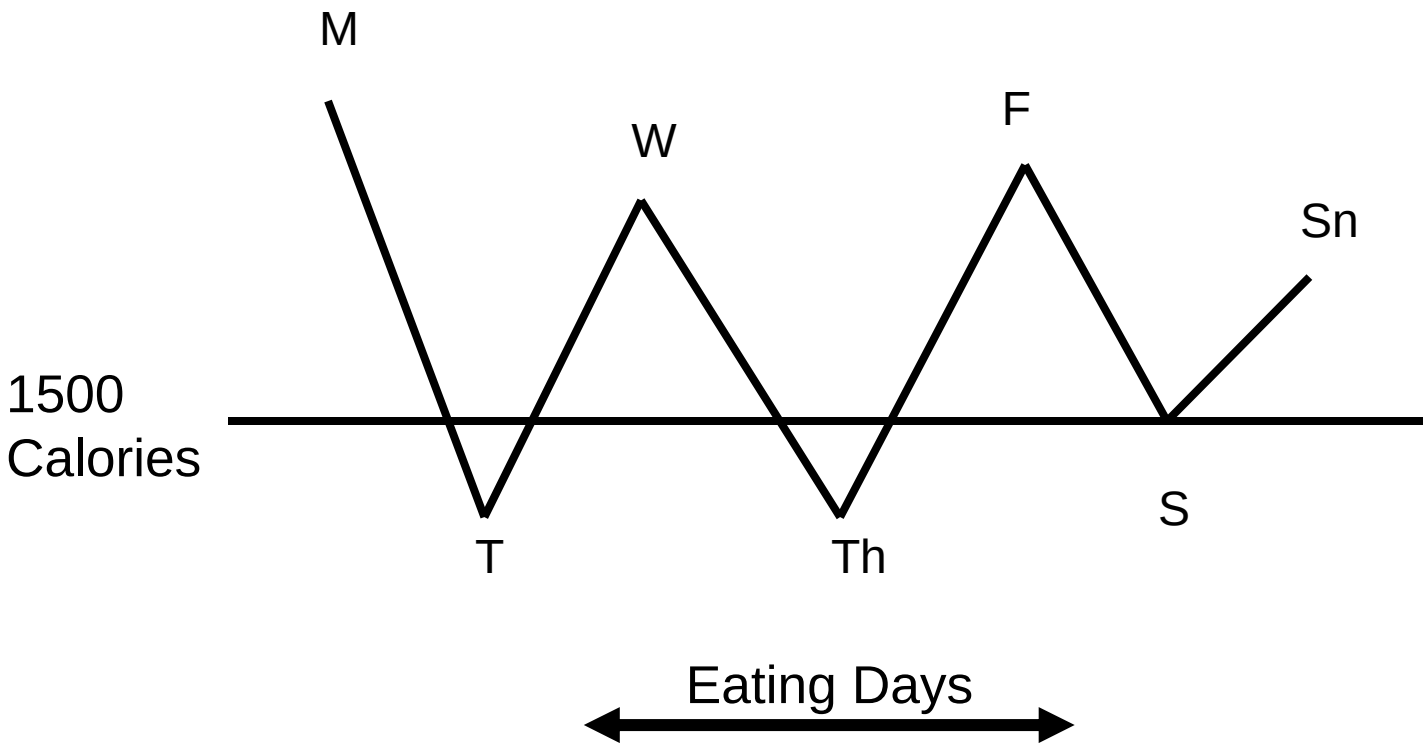
Nutrition Facts

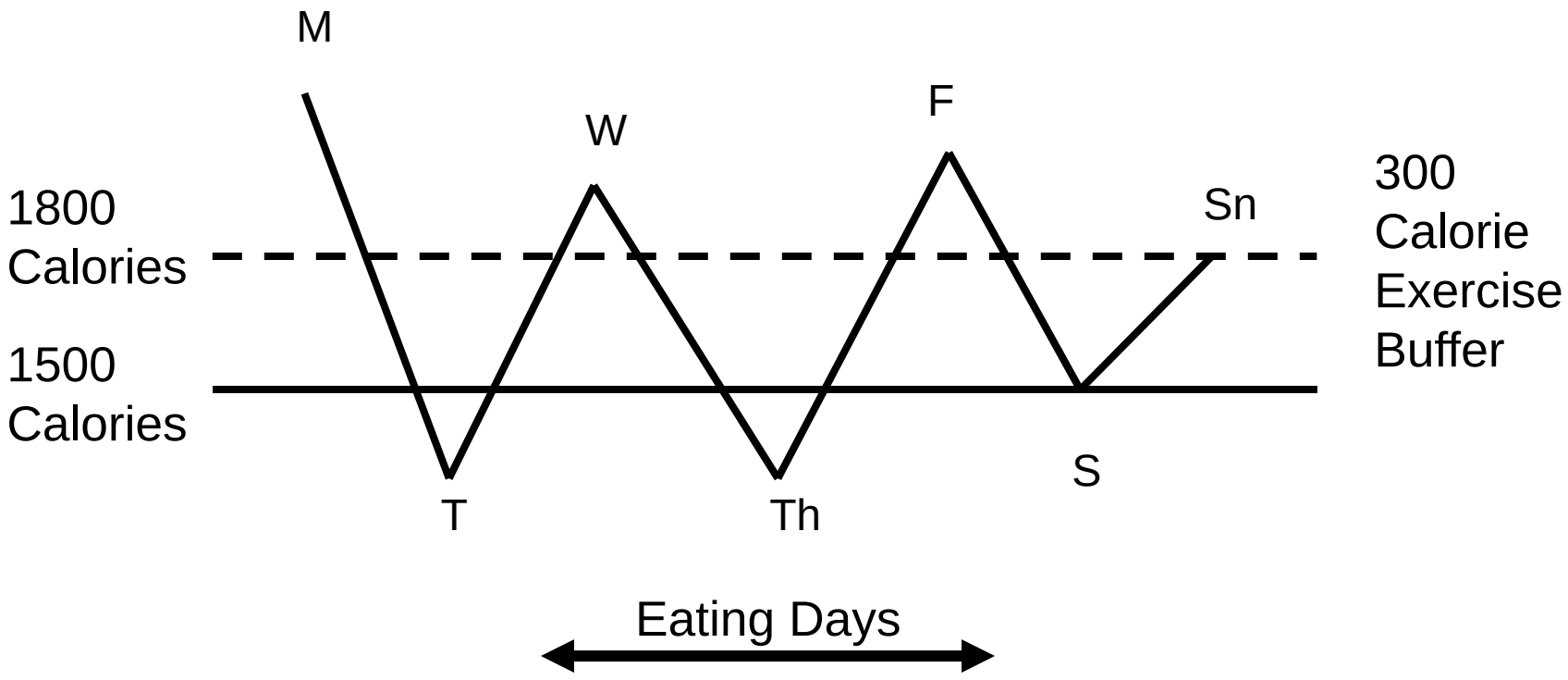
- 3500 calories = a pound
- A 150 lbs. person burns 100 calories when walking a mile
- A 150 lbs. woman needs food minus extra exercise/activity to be around 1500 calories a day to maintain her weight.
- A 150 lbs. man can maintain on about 10% more calories or 1650 calories a day

Just How Hard Is It to Make a Lifestyle Change?

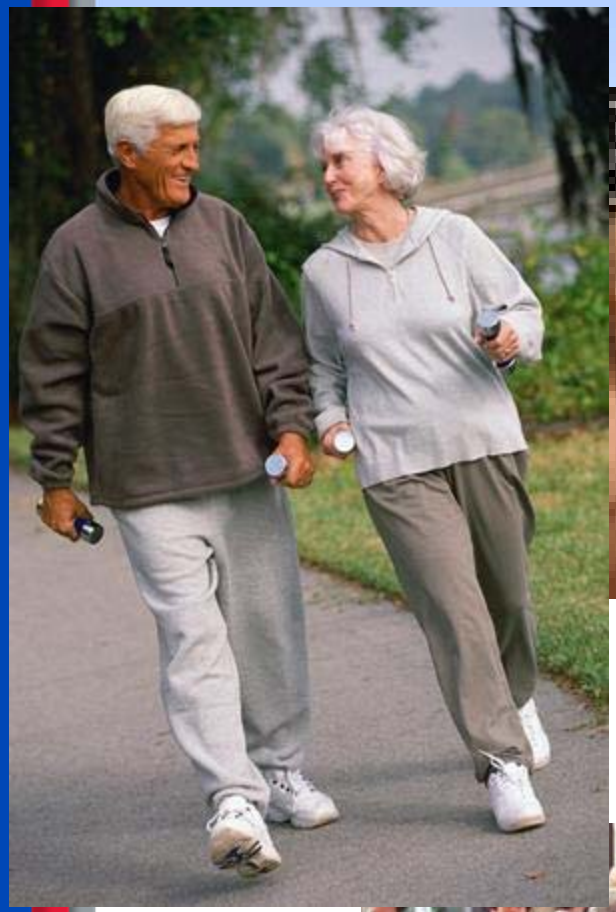
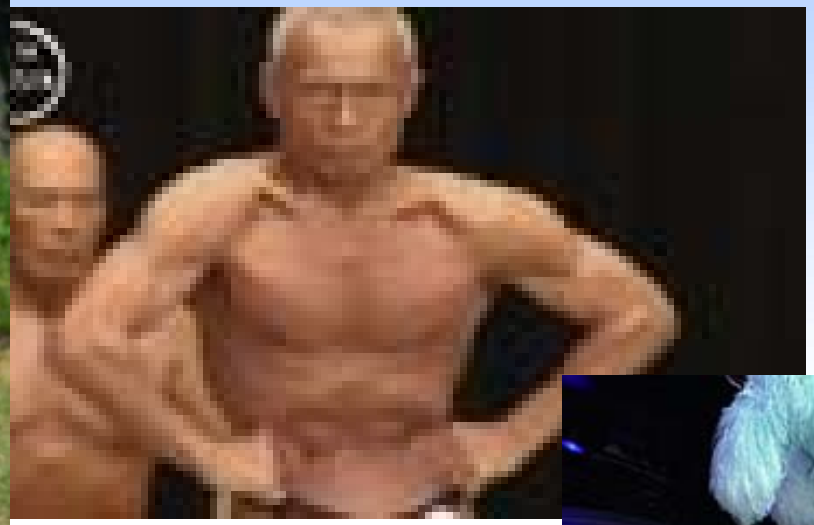
- Let’s look at a woman who has just lost 50 lbs and now weighs 150 lbs
- She originally was able to eat around 2000 calories a day, while remaining sedentary, and keep her weight at 200 lbs
- Now, the **REWARD**? for her weight loss is that she can only eat 1500 calories at her new weight!

Typical Week Trying To Maintain a Weight of 150 Lbs.




M
W
F
Sn
1800
Calories
1500
Calories
300
Calorie
Exercise
Buffer
T
Th
S
Eating Days

Building a Foundation: Preventive Vital Signs

- Blood pressure
- Pulse
- Respiration
- Minutes of intentional physical activity
- Daily fruits and vegetables
- Tobacco use

The long-term treatment of obesity is a marathon, not a sprint.