The Truth about Diets

Ira S. Ockene, M.D.
What we will cover:

• A historical perspective
• What were we meant to eat?
• The importance of physical activity
• Do diets work?
• What does work?
• Medical vs. cosmetic weight loss
• Attitude!
A Case Report
Sixty-four year old carpenter and funeral director with a long history of progressive weight gain. No family history of obesity.

Physicians recommended exercise – he began to row a boat two hours a day, which gave him a great appetite and he gained more weight.

Then told by his physicians to eat “moderate and light food”. He was uncertain what this meant, but proceeded to eat poorly and developed boils and carbuncles. He was admitted to hospital for surgical therapy of the carbuncles, was fed well, and gained more weight.
The patient tried swimming, walking, riding, and taking the sea air. He went to spas, went on low-calorie starvation diets, and for a year took Turkish baths three times a week, losing only 6 lbs. and becoming quite weak.

He consulted an eminent physician who told him that weight gain was perfectly natural and that the physician himself had gained a pound for every year of manhood.

At age 64, he weighed 202 lbs. and was 5’5” tall (BMI 33.6).
He notes: “I have been compelled to go down stairs slowly backwards, to save the jar of increased weight upon the ankle and knee joints, and been obliged to puff and blow with every slight exertion, particularly that of going up stairs.” He also had an umbilical hernia and found that he was becoming increasingly deaf. At this point he consulted an ear, nose, and throat specialist who told him that all of his problems were related to obesity, and based upon a lecture on metabolism that the doctor had recently heard in Paris, recommended a low-carbohydrate, unrestricted-fat diet.
LETTER
ON CORPULENCE,
Addressed to the Public
By WILLIAM BANTING,
FOURTH EDITION
WITH PREFATORY REMARKS BY THE AUTHOR
COPIOUS INFORMATION FROM CORRESPONDENTS AND CONFIRMATORY EVIDENCE OF THE BENEFIT OF THE DIETARY SYSTEM WHICH HE RECOMMENDED TO PUBLIC NOTICE
LONDON
PUBLISHED BY HARRISON, 59, PALL MALL
Bookseller to the Queen and H.R.H. the Prince of Wales
1869
PRICE ONE SHILLING

IT is with no slight degree of pride and satisfaction that I presume to publish a fourth edition of my Letter on Corpulence, in the hope and belief that it may still further interest and benefit the Public. The preceding editions were composed and issued with all sorts of apparent defects and deformities from my utter inability to afford any substantial evidence of the merit and utility of the system beyond my own personal and short experience. Five years have now elapsed since the third edition was published. It has happily attained a world-wide circulation, and afforded me a vast amount of pleasure and gratification, derived from the conviction that I have been the means of bringing under public consideration and discussion one of the little known and much neglected laws of nature. The popularity of my unpretending brochure is manifest, not only in the surprising sale of no less than 63,000 copies, in this country alone, but by its translation into foreign languages and its large and rapid circulation in France, Germany, and the United States. In addition to this I have received nearly 2,000 very complimentary and grateful letters from all quarters of the world.
"It is possible, and I think probable, that even Mr. Harvey was somewhat surprised at the extraordinary and speedy result of my rigid adherence to his advice, because he had long before prescribed the proper dietary system to reduce or cure corpulence, but his patients having hitherto imprudently slighted his prescriptions, it was only my very strict compliance that completely proved the accuracy of his judgment."
"I have been told, again and again, that the system was as old as the hills. I will not deny it, because I cannot; but I can say for myself and my many correspondents, that it was quite new to us."

The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is no new thing under the sun.

Ecclesiastes 1:9
“The items from which I was advised to abstain as much as possible were: bread, butter, milk, sugar, beer, and potatoes, which had been the main (and, I thought, innocent) elements of my subsistence.”
“I am now in that happy comfortable state that I do not hesitate to indulge in any fancy in regard to diet, but watch the consequences, and do not continue any course which adds to weight or bulk and consequent discomfort.”
Prevalence of Obesity and Diagnosed Diabetes Among US Adults, 1991 and 2001

FIG. 1-13. Ni-Hon-San Study. Age-adjusted total serum cholesterol distribution (mg/dl) in three populations. Note that as individuals of Japanese heritage move closer to or become acclimated in a Western culture, their serum total cholesterol levels and incidence of coronary heart disease increase. (From Blackburn, 1979, with permission.)
Obesity and Lifestyle: CVD Risk Factor Clustering

- **Cancer Risk?**
- **Excess calories/fat**
- **Heart failure**
- **Habitual sodium intake**
- **Physical Inactivity**
- **OBESITY**
- **BP**
- **Stroke**
- **LVH**
- **ETOH**
- **Insulin sensitivity**
- **Glucose tolerance**
- **Diabetes**
- **Sympathetic nervous system activity**
- **Oxidative stress**
- **Dyslipidemia**
- **↑LDL-C**
- **↑TG**
- **↓HDL-C**
The “Super-Sizing” of America

“This year, Americans will spend more money on fast food than on higher education…”

Q: How far are you from McDonald's?

A: Not far at all.

Leicester Square • Haymarket • Shaftesbury Ave. • Shaftesbury Ave.
Open 24 hours

by Denman Street

You are here

by Wardour Street
## Paleolithic and current U.S. nutrient intake

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Paleolithic</th>
<th>U.S. RDA</th>
<th>Current U.S.</th>
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</thead>
<tbody>
<tr>
<td>Energy (kcal/d)</td>
<td>3000</td>
<td>2200-2900</td>
<td>1750-2500</td>
</tr>
<tr>
<td>Iron (mg/d)</td>
<td>87.4</td>
<td>10-18</td>
<td>10-11</td>
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<tr>
<td>Calcium (mg/d)</td>
<td>1956</td>
<td>800-1200</td>
<td>750</td>
</tr>
<tr>
<td>Sodium (mg/d)</td>
<td>768</td>
<td>500-2400</td>
<td>4000</td>
</tr>
<tr>
<td>Potassium (mg/d)</td>
<td>10500</td>
<td>3500</td>
<td>2500</td>
</tr>
<tr>
<td>Fiber (g/d)</td>
<td>104</td>
<td>20-30</td>
<td>10-20</td>
</tr>
<tr>
<td>Folate (mg/d)</td>
<td>0.36</td>
<td>0.18-0.2</td>
<td>0.15-0.21</td>
</tr>
<tr>
<td>Ascorbate (mg/d)</td>
<td>604</td>
<td>60</td>
<td>77-109</td>
</tr>
<tr>
<td>Vitamin E (mg/d)</td>
<td>32.8</td>
<td>8-10</td>
<td>7-10</td>
</tr>
</tbody>
</table>

The China Study

- 6500 men and women in 65 largely rural counties, surveyed in 1983
- Mean plasma cholesterol range: 88-165 mg/dl
- Continuous decline in CHD with decreasing plasma cholesterol, to almost negligible levels
- Mean iron intake (34.4 mg/day) almost double that of the U.S., largely from plant sources
- Anemia rare
- Energy intake 20% higher than in the U.S., but obesity rare

Junshi C, Campbell TC, Junyao L, Peto R. 1990
The China Study

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat (% of calories)</td>
<td>14.5</td>
<td>38.8</td>
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<tr>
<td>Plasma cholesterol (mg/dl)</td>
<td>127</td>
<td>212</td>
</tr>
<tr>
<td>Plant protein (% of total protein)</td>
<td>89</td>
<td>30</td>
</tr>
<tr>
<td>Dietary fiber (g/day)</td>
<td>33.3</td>
<td>11.1</td>
</tr>
<tr>
<td>BMI (wt/ht²)</td>
<td>20.5</td>
<td>25.8</td>
</tr>
<tr>
<td>Energy intake (kcal)</td>
<td>2641</td>
<td>2360</td>
</tr>
<tr>
<td>Energy intake (kcal/kg)</td>
<td>40.6</td>
<td>30.6</td>
</tr>
</tbody>
</table>

Junshi C, Campbell TC, Junyao L, Peto R. 1990
Endurance running and the evolution of Homo

Bramble & Lieberman, Nature 2004:432;345-352

Long distance running is rare in the mammalian world – wolves and related dogs; horses; wildebeest, and humans

<table>
<thead>
<tr>
<th>Feature</th>
<th>Functional role</th>
<th>W/R*</th>
<th>Earliest evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enlarged posterior and anterior semicircular canals</td>
<td>Head/body stabilization</td>
<td>R</td>
<td>H. erectus</td>
</tr>
<tr>
<td>Expanded venous circulation of neurocranium</td>
<td>Thermoregulation</td>
<td>R</td>
<td>H. erectus</td>
</tr>
<tr>
<td>More balanced head</td>
<td>Head stabilization</td>
<td>R</td>
<td>H. habilis</td>
</tr>
<tr>
<td>Nuchal ligament (1)</td>
<td>Head stabilization</td>
<td>R</td>
<td>H. habilis</td>
</tr>
<tr>
<td>Short snout (2)</td>
<td>Head stabilization</td>
<td>R</td>
<td>H. habilis</td>
</tr>
<tr>
<td>Tall, narrow body form</td>
<td>Thermoregulation</td>
<td>R &gt; W</td>
<td>H. habilis</td>
</tr>
<tr>
<td>Decoupled head and pectoral girdle (3)</td>
<td>Counter-rotation of trunk versus head</td>
<td>R</td>
<td>H. erectus?</td>
</tr>
<tr>
<td>Low, wide shoulders (4)</td>
<td>Counter-rotation of trunk versus hips</td>
<td>R</td>
<td>H. erectus?</td>
</tr>
<tr>
<td>Forearm shortening (5)</td>
<td>Counter-rotation of trunk versus hips</td>
<td>R</td>
<td>H. erectus?</td>
</tr>
<tr>
<td>Narrow thorax (6)</td>
<td>Countrottoration of trunk versus hips</td>
<td>R</td>
<td>H. erectus?</td>
</tr>
<tr>
<td>Narrow and tall waist between iliac crest and ribcage (7)</td>
<td>Counter-rotation of trunk versus hips</td>
<td>R</td>
<td>H. erectus?</td>
</tr>
<tr>
<td>Narrow pelvis (8)</td>
<td>Counter-rotation of trunk versus hips</td>
<td>R</td>
<td>Homo?</td>
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<tr>
<td>Expanded lumbar centra surface area (9)</td>
<td>Stress reduction</td>
<td>R &gt; W</td>
<td>H. erectus</td>
</tr>
<tr>
<td>Enlarged iliac pillar (10)</td>
<td>Stress reduction</td>
<td>R</td>
<td>H. erectus</td>
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<tr>
<td>Stabilized sacroiliac joint</td>
<td>Stress reduction</td>
<td>R</td>
<td>H. erectus</td>
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<tr>
<td>Expanded surface area for mm. erector spinae origin (11)</td>
<td>Trunk stabilization</td>
<td>R</td>
<td>H. erectus</td>
</tr>
<tr>
<td>Expanded surface area for m. gluteus maximus origin (12)</td>
<td>Trunk stabilization</td>
<td>R</td>
<td>H. erectus</td>
</tr>
<tr>
<td>Long legs (13)</td>
<td>Stride length</td>
<td>R,W</td>
<td>H. erectus</td>
</tr>
<tr>
<td>Expanded hindlimb joint surface area (14)</td>
<td>Stress reduction</td>
<td>R &gt; W</td>
<td>H. erectus</td>
</tr>
<tr>
<td>Shorter femoral neck (15)</td>
<td>Stress reduction</td>
<td>R &gt; W</td>
<td>H. sapiens</td>
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<tr>
<td>Long Achilles tendon (16)</td>
<td>Stress reduction</td>
<td>R &gt; W</td>
<td>Homo?</td>
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<tr>
<td>Plantar arch (passively stabilized) (17)</td>
<td>Energy storage</td>
<td>R</td>
<td>Homo?</td>
</tr>
<tr>
<td>Enlarged tuber calcaneus (18)</td>
<td>Energy storage</td>
<td>R</td>
<td>Homo?</td>
</tr>
<tr>
<td>Close-packed calcaneocuboid joint</td>
<td>Shock absorption</td>
<td>n &gt; w</td>
<td>Homo?</td>
</tr>
<tr>
<td>Permanently adducted hallux (19)</td>
<td>Powered plantarflexion</td>
<td>R &gt; W</td>
<td>Homo?</td>
</tr>
<tr>
<td>Short toes (20)</td>
<td>Stability during plantarflexion</td>
<td>R &gt; W</td>
<td>Homo?</td>
</tr>
<tr>
<td>Distal mass reduction</td>
<td>Stability during plantarflexion</td>
<td>R &gt; W</td>
<td>Homo?</td>
</tr>
</tbody>
</table>

*W, R indicate traits that enhance performance in endurance walking and endurance running, respectively; R > W indicates traits that benefit both walking and ER, but which have a greater effect on ER. Numbers in parentheses correspond to those in Fig. 3a and c.
$r^2 = .5$
Weight change (kg) over one-year (N=305)

Distribution of weight change values

10th: -4.1 kg
25th: -1.4 kg
50th: 0.45 kg
75th: 1.8 kg
90th: 3.6 kg
Weekly Variation of Total Energy Intake

(Kcal/day)

Day of the Week (Mon-Sun)
BMI vs. energy - baseline - all

Rsq = 0.0061
BMI vs. HDL - male

Rsq = 0.1391
Age vs. caloric intake, by sex (7DDR)
SumActivity by age

![Graph showing SumActivity by age with lines for male and female. The x-axis represents age ranging from 22 to 72, and the y-axis represents SUMActivity ranging from 6 to 20. The graph illustrates the trend of activity levels across different age groups for both genders.](image)
Physical Activity - The SEASON study

Time reported in activity (hrs/d)

- Light
- Moderate
- Vigorous
- Very vigorous
- Household
- Occupational
- Leisure-time
- Total
Posture and obesity

Richard Pepler says that he is like his cat, Venus. "Playful, but with a streak of reality." Photograph by Morti Shottman.
Ecological Frameworks/Models

- Changing economics of obesity
  - Caloric expenditure – much more expensive
  - Caloric intake – much less expensive

Selected hits in Amazon.com for “weight-loss diet”

Wrap yourself slim
One Low Carbohydrate Diet That Always Works
Zone diet
Atkins’ diet
South Beach Diet
The Scarsdale Low Carb Diet
The Dutch Mind Diet
The Sun Slim Weight Loss Program
The Grape Cure
The Egg diet
The "Lose 10 lbs. in 4 Days" Program
The Ultimate Weight Solution: The 7 Keys to Weight Loss Freedom
author(s): by: Phil McGraw
The Good Carb Cookbook: Secrets of Eating Low on the Glycemic Index
The Metabolic Typing Diet: Customize Your Diet to Your Own Unique Body Chemistry
The Fat Flush Plan
The Diet Cure: The 8-Step Program to Rebalance Your Body Chemistry and End Food Cravings, Weight Problems, and Mood Swings-Now
Eat, Drink, and Be Healthy: The Harvard Medical School Guide to Healthy Eating (Willett)
Eat More, Weigh less (Dean Ornish)
The L.A. Shape Diet: The 14-Day Total Weight Loss Plan
Dr. Shapiro’s Picture Perfect Weight Loss: The Visual Program for Permanent Weight loss
Gary Null’s Ultimate Lifetime Diet : A Revolutionary All-Natural Program for Losing Weight and Building a HealthyBody
Outwit Your Weight Journal: Lose Weight and Keep It Off With This Personalized Weight-Loss Diary
Thin Within
Weight Loss Kit for Dummies
The Solution: For Safe, Healthy, and Permanent Weight Loss
The Pritikin Weight Loss Breakthrough: Five Easy Steps to Outsmart Your Fat Instinct
NutriSystem Nourish: The Revolutionary New Weight-Loss Program
TCM: A Natural Guide to Weight Loss That Lasts
The Fat Fallacy : The French Diet Secrets to Permanent Weight Loss
The Stillman Diet
DR. ATKINS' DIET REVOLUTION

"Dr. Atkins' Diet Revolution, The High Calorie Way to Stay Thin Forever" (New York: McKay, 1972) promotes a low-carbohydrate diet for weight reduction. The Atkins diet is not new or revolutionary; it is similar to one described by W. Banting as far back as 1863 and advocated recently in "The Drinking Man's Diet" (G. Jameson and E. Williams, San Francisco: Cameron, 1964) and "Calories Don't Count" (H. Taller, New York: Simon and Schuster, 1961). The diet advocated by Dr. Atkins at first excludes virtually all carbohydrate and later permits a gradual increase to no more than 40 Gm per day. It is a diet designed to produce ketosis, with the degree of ketonuria to be monitored by the patient with a dipstick test of the urine.
A critique of low-carbohydrate ketogenic weight reduction regimens. A review of Dr. Atkins' diet revolution  

"Over the years, starting with the “Banting Diet,” such regimens have been awarded a succession of eponyms and, from the very beginning, have been proclaimed to the public in glowing terms. If such diets are truly successful, why then, do they fade into obscurity within a relatively short period only to be resurrected some years later in slightly different guise and under new sponsorship. Moreover, despite the claims of universal and painless success for such diets, no nationwide decrease in obesity has been reported."
Hope springs eternal
Memory is short

They describe an experiment in which six obese subjects were put on a low carbohydrate diet and told they could eat as much fat and protein as they liked. All six reduced caloric intake from 6 to 55%, and three of the six actually reduced their fat intake. They concluded that weight loss on such diets was principally due to the consumption of fewer calories.

“At the other extreme, a majority of human beings, particularly those in Asia and Africa, remain lean on diets extremely high in carbohydrate (by American standards) and correspondingly low in fat. Thus there is equally no inherent reason to associate a diet rich in carbohydrate with obesity.”
Efficacy and Safety of Low-Carbohydrate Diets: A systematic Review

- 2609 papers reviewed
- 94 studies included
- Few participants; short follow-up (only 5 >90 days – non-randomized, no controls); no study had a mean age >53
- Greater weight loss correlated with higher baseline weights, longer diet duration, and lower caloric consumption
- No correlation seen with the degree of carbohydrate restriction
- No change in lipids, BP, FBS, insulin levels
- Insufficient evidence to make recommendations either for or against the use of low-carbohydrate diets
A Low-Carbohydrate as Compared with a Low-Fat Diet in Severe Obesity

Frederick F. Samaha, M.D., Nayyar Iqbal, M.D., Prakash Seshadri, M.D., Kathryn L. Chicano, C.R.N.P., Denise A. Daily, R.D., Joyce McGrory, C.R.N.P., Terrence Williams, B.S., Monica Williams, B.S., Edward J. Gracey, Ph.D., and Linda Stern, M.D.
• 132 severely obese men and women (13% female; mean BMI 43; mean weight 288 lbs., 39% diabetic)

• low-carb, high-protein, high-fat diet or low-cal, low-fat, high-carb diet

• 6 month follow-up
• 79 subjects completed 6 months (60%)
• Significant difference in weight loss at 6 months (-13 lbs [4.5%] vs. -4.2 lbs [1.5%])
• Subjects on the low-carb diet had a greater reduction in caloric intake
• Poor adherence and high attrition in both groups

Samaha et al. NEJM 2003;348:2074
A Randomized Trial of a Low-Carbohydrate Diet for Obesity

Gary D. Foster, Ph.D., Holly R. Wyatt, M.D., James O. Hill, Ph.D.,
Brian G. McGuckin, Ed.M., Carrie Brill, B.S., B. Selma Mohammed, M.D., Ph.D.,
Philippe O. Szapary, M.D., Daniel J. Rader, M.D., Joel S. Edman, D.Sc.,
and Samuel Klein, M.D.
• 63 obese men and women
• low-carb, high-protein, high-fat diet or low-cal, low-fat, high-carb diet
• 12 month follow-up

Foster et al. NEJM 2003;348:2082
• 37 subjects completed 12 months (59%)
• Significant difference in weight loss at 6 months (-7.0% [15 lbs] vs. -3.2% [7 lbs]), but no significant difference at 12 months (-4.4% [9.5 lbs] vs. -2.5% [5.4 lbs])
• Weight loss of ≥10% seen in 9 of 64 subjects on the low-carb diet (14%) and 2 of 68 subjects on the low-fat diet (3%)
• TG lower in the low-carb group
• Subjects on the low-carb diet had a greater reduction in caloric intake
• Poor adherence and high attrition in both groups

Foster et al. NEJM 2003;348:2082
• In both trials, the participants achieved limited weight loss, with evidence of rebound over the course of the trial. The average weight loss was greater in the low-carbohydrate groups than in the low-fat groups, but the difference was no longer significant at 12 months in the trial in which follow-up lasted that long. Finally, the weight loss was small relative to the amount of excess weight carried by these obese subjects.
Comparison of the Atkins, Ornish, Weight Watchers, and Zone Diets

160 pts (40/group)

1 yr weight loss:
   Atkins: 2.1 kg (53% completed)
   Zone: 3.2 kg (65% completed)
   Weight Watchers: 3.0 kg (65% completed)
   Ornish: 3.3 kg (50% completed)

Each popular diet modestly reduced body weight and several cardiac risk factors at 1 year. Overall dietary adherence rates were low, although increased adherence was associated with greater weight loss and cardiac risk factor reductions for each diet group.

Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates

Frank M. Sacks, M.D., George A. Bray, M.D., Vincent J. Carey, Ph.D., Steven R. Smith, M.D., Donna H. Ryan, M.D., Stephen D. Anton, Ph.D., Katherine McManus, M.S., R.D., Catherine M. Champagne, Ph.D., Louise M. Bishop, M.S., R.D., Nancy Laranjo, B.A., Meryl S. Leboff, M.D., Jennifer C. Rood, Ph.D., Lilian de Jonge, Ph.D., Frank L. Greenway, M.D., Catherine M. Loria, Ph.D., Eva Obarzanek, Ph.D., and Donald A. Williamson, Ph.D.
Study Overview

- This randomized trial compared the effect of reduced-calorie diets with various compositions of fat, protein, and carbohydrates on weight loss over a 2-year period in 811 overweight adults.
- Group and individual counselling sessions.
- Compliance with the diets was not high.
- Average weight loss at 2 years was 4 kg (8.8 lbs) excluding the 20% who dropped out.
- No significant differences in weight loss were observed among the various diets.
- Satiety, hunger, satisfaction with the diet, and attendance at group sessions were similar for all diets; attendance was strongly associated with weight loss (0.2 kg per session attended).
- Reduced-calorie diets appear to have similar effects on weight loss regardless of their particular compositions.
Dietary Quality Comparison of Popular Weight-Loss Plans

Dietary quality was estimated using the Alternate Healthy Eating Index (AHEI), a measure of dietary components strongly linked to CVD risk reduction (highest possible score = 70):

- Ornish: 64.6
- Weight Watchers high-carbohydrate: 57.4
- New Glucose Revolution: 57.2
- South Beach/Phase 2: 50.7
- Zone: 49.8
- 2005 Food Guide Pyramid: 48.7
- Weight Watchers high-protein: 47.3
- Atkins/100-g carbohydrate: 46
- South Beach/Phase 3: 45.6
- Atkins/45-g carbohydrate: 42.3

Successful long-term weight loss – The National Weight Control Registry

- 629 women; 155 men
- Lost an average of 30 kg; maintained a minimum wt loss of 13.6 kg for 5 years
- Only half used formal programs
- 77% reported a triggering event
- 42% reported maintenance less difficult than initial wt loss
- Nearly all reported improved energy, mobility, mood, confidence and general health

Successful long-term weight loss – The National Weight Control Registry

- 89% used both exercise and diet to lose weight
- Average caloric expenditure during maintenance: 2830 kcal/d (male = 3493 kcal/d; female = 2672 kcal/d)
- 72% > 1000 kcal/week; 52% > 2000 kcal/week
- 24% of calories from fat (m 23%; f 25%)
- 38% weighed daily; 75% at least weekly

Patient expectations of weight loss
(68 women; mean weight 99.1 Kg)

Medical vs. Cosmetic weight loss

• Cosmetic weight loss is measured in a mirror, medical weight loss is measured on a scale.
• 5 – 10 pound weight loss reduces blood pressure, lipids, risk of diabetes; improves diabetes control.
Predictors of weight change in overweight patients with myocardial infarction

- 1253 post-MI patients [BMI ≥25 kg/m2] followed up for 1 year to determine weight change.
- Mean weight change was −0.2%
- Multivariable analyses: significant association with weight change:
  - depression 1 month post-MI (+2.7%, P = .001),
  - lack of health insurance (+2%, P = .01)
  - smoking cessation 1 month post-MI (+2.7% vs current smokers, P < .001)
  - morbid obesity (+4.7% vs overweight patients, P < .0001)
  - increasing age (−0.8% per decade, P = .001)

How to burn calories without exercise

• Use stairs whenever possible
• Park further away
• Buy a heavy laptop; carry it everywhere
• Walk at airports, don’t take the moving walkways
• Throw away every remote control
• Never go to a drive-up anything – get out of the car!
• If there is a choice, take the door you have to push open.
• Hold doors for others.
• Stand, don’t sit.
• Move, don’t just stand there.
How to burn calories without exercise

• Never ask anyone to get anything for you.
• Be grateful when others ask you to get things for them.
• Be as inefficient as possible. Make several trips where one would do.
• Disable the automatic garage door opener
• Don’t buy cars with automatic doors
• Get a pedometer!
• Don’t use laser pointers from your seat – get up and walk to the screen.
• Throw away all of the powered gadgets – rake the grass, trim the hedges, shovel the snow, push the lawn mower. At the least, don’t get a riding mower!
“When Grandma was young, she had to walk all the way to the TV to change the channels.”
Get a big dog and walk him a lot
"...WE'VE JUST UPDATED THE FOUR BASIC FOOD GROUPS..."
What Can We Conclude?

- Probably there are many diets that will work for weight loss – it is adherence that is key
- An ideal diet should be low in both simple sugars and saturated fat, high in fiber, fruits and vegetables
- Physical activity is crucial. If you burn 100 calories you can eat 100 calories
Linguistic predictors of lifestyle compliance

Negative:

“I’ll try”
“I’ll do my best”
“I hope I can do it”
“I know I need to do it”
“I will make every effort”

Positive:

“Do you think I’m an idiot? Of course I will do it”
“No problem”
“When I come back I won’t be smoking (will weigh 5 pounds less, etc.)”
Behavioral Medicine 101
Any questions?