Volumetrics
More Food, Less Calories
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Finding The Balance

True or False???

- You may be losing body fat even though the scales stay the same
- As we get older, metabolism decreases
- Skipping meals is a good way to lose weight
- The best way to lose weight is to just count fat grams
- People tend to underestimate their food intake and over estimate their exercise intake
- Fat has more than twice as many calories as carbohydrates
What is Obesity?

- Defined as being 20% above the Ideal Body Weight on Metropolitan Life Insurance Height/Weight Tables
- Considered to be the level where health risks increase significantly: heart disease, diabetes, high blood pressure, etc.

Body Mass Index
What do the numbers mean?

- A measure of weight in relation to height
- **Healthy weight BMI= 18.5 – 24.9**
- **Overweight BMI= 25.0 – 29.9**
- **Obesity BMI**
  - Class I: 30.0 – 34.9
  - Class II: 35.0 – 39.9
  - Class III: >40.0
Waist Measurement: no more than 40 inches for men, 35 inches for women.

Obesity Trends* Among U.S. Adults

BRFSS, 1985

(BMI ≥ 30, or ~ 50 lbs overweight for 5'4" woman)

Obesity Trends* Among U.S. Adults

BRFSS, 1990

BMI ≥ 30, or ~ 30 lbs overweight for 5’4’’ woman

No Data  <10%  10%-14%  15-19%  ≥20%  


Obesity Trends* Among U.S. Adults


*BMI >30, or about 30 lbs overweight for 5’4’’ person

1991 1993-1995 Combined Data

1996-2000 Combined Data  2008-2010 Combined Data

No Data <10% ≥10% and <15% ≥15% and <20% ≥20% and <25% ≥25% and <30% ≥30%
What We Do Know

- Obesity is the cause of 300,000 deaths/yr
- The cause is multifactorial- genetic, behavioral and environmental
- “Obesigenic environment”
- The treatment is multidimensional
- Long term maintenance of weight loss is not often achieved
Assessing Body Composition

Body Fat % based on gender
Recommended Levels for Americans:
- 18 - 23% - Men
- 25 - 30% - Women

Waist Circumference: < 35” for women, <40 “ for men

Dieting...
“I’ve been dieting for a month and all I’ve lost is 31 days!”

- Each year, 20 million Americans go on a diet; almost half of all U.S. middle-aged women
- $60 billion is spent per year
- Average weight loss < 5 lbs
- 95% of weight lost is regained within 5 years
- ½ of 1% who reach goal weight succeed after 5 years
The Pitfalls….

- Feelings of deprivation
- Binge eating on favorite foods
- Overeating and weight regain
- Guilt
- Too few calories
- Metabolism lowers
- Increased fat storage
- Disordered eating is on the rise, especially among the adolescent

Calories Count
Energy In = Energy Out

- To lose weight, energy intake must be reduced
- One pound of body fat = 3500 kcal
- To lose 1 lb/wk, decrease caloric intake by 500 cal/day
- To lose 2 lb/wk, decrease caloric intake by 1000 kcal/day
Not so simple

- The fact is that different foods can have vastly different effects on our bodies and go through different metabolic pathways before they’re turned into energy.
- 200 calories of jellybeans does NOT equal 200 calories of avocado.
- Just focusing on the calorie content of foods and disregarding the metabolic effects they have is a highly flawed way of thinking.
- Drinking a can of soda every day for 5 years will have a vastly different effect on the body and long-term energy balance, compared to eating the same calories from salmon.

Is long-term weight loss possible?

- National Weight Control Registry: Largest study of people successful at long-term maintenance of weight loss.
- Criteria – Lost at least 30 pounds and kept it off for at least a year.
- Approximately 6,000 people.
NWCR

- Average weight lost is about 70 pounds
- Average is 6 ½ years
- 14% of members have lost 100 pounds or more
- 72% became overweight during childhood/adolescence
- About 75% report that at least one parent was overweight

To LOSE weight

- 89% modified BOTH food intake and physical activity
- 10% used diet alone
- 1% modified ONLY physical activity
- 55% used a formal program or professional assistance
To LOSE weight

- Majority limited certain TYPES of food
- 44% ate all foods but limited QUANTITY
- Very few lost weight for the last time using fad diets
- Overwhelming majority said that the key was changing their lifestyle for good

NWCR: To MAINTAIN Weight

- Eat regular meals, including breakfast
- On average, eat 5 times per day
- On average eat one meal at a fast-food restaurant and 2.5 meals at non-fast food restaurant per week
- Continue to monitor their food intake in some way but do NOT feel deprived or feel like they are “dieting.”
NWCR: ACTIVITY

- Report being very active
- On average – report expending about 2,700 calories a week through physical activity or the equivalent of walking about 4 miles a day.
- A lb of lean mass (muscle, bones, organs) burns about 12 calories per day while at rest
- A lb of fat burns 2-3 calories per day while at rest

Weighing

- 38% weigh themselves daily
- 75% weigh themselves once per week
- Weighing yourself nude before breakfast best
Feeling full on Fewer Calories

- The foods you choose can help you control hunger while losing weight
- Deprivation is NOT a good long-term strategy
- Choosing foods high in protein, fiber and “volume” can be excellent tools in the weight loss challenge

Volumetrics

- Research on Volumetrics done by researcher Barbara Rolls, Ph.D at Penn State University
- Ranked among the top 10 best diets in 2015 by U.S. News and World Report for weight loss, diabetes, and heart health
- Also ranked among the top 10 in 2014
Volumetrics

- Based on “satiety” feeling full and satisfied
- If you limit calories by simply eating less, you’ll feel hungry and deprived
- Some foods keep you full and satisfied until the next meal, while with others hunger returns soon after eating
- Very important to schedule regular eating times
- 3 meals and 1 or 2 snacks daily
- Do not allow yourself to get too hungry!
- Eat Breakfast!

Calorie Density

- If most of your food choices pack lots of calories into each bite – calorie dense foods – you will overeat and get too many calories
- Calorie dense foods: chips, crackers, cookies
- Energy density: calories per gram of food
- 100 calories: ¼ cup raisins or 1 cup grapes
Energy Density

- Research shows the weight of food a person eats is more similar from day to day than the number of calories consumed.
- Stomach size of fist.
- Choosing foods that have fewer calories in your usual weight of food, you will end up eating fewer calories.
- Won’t feel hungry!

High Satiety Foods

- Eat foods low in energy density.
- Choose foods high in fiber.
- Eat adequate amounts of lean protein.
- Reduce intake of fat (twice as many calories per gram as protein and carbs).
Where the calories are

- Fat: 9 calories per gram
- Alcohol: 7 calories per gram
- Carbohydrate: 4 calories per gram
- Protein: 4 calories per gram
- Fiber: 2 calories per gram
- Water: 0 calories per gram
How many calories do I need?

Based on height, weight, sex, activity level, age
Different for everyone
www.mypyramid.gov
Subtract 500 calories per day from maintenance level to lose 1 pound per week
Energy Density – Read Food Labels!

- Calories per gram
- Calorie – measure of energy in food
- Gram – measure of weight
- Calories of mozzarella cheese stick: 60
- Weight in mozzarella cheese stick: 28 grams (under serving size)
- \( \frac{60 \text{ calories}}{28 \text{ grams}} = 2.1 \) Energy Density

Foods low in energy density

- Very low energy density 0 – 0.6: Non-starchy fruits and vegetables, clear soups, nonfat milk, broth based soups
- Low energy density: 0.6 – 1.5: Starchy fruits and vegetables, grains, low-fat meats/poultry, beans, legumes
Energy Dense Foods

- Medium Energy Density 1.5 – 4.0: Meats, cheese, pizza, French fries, salad dressing, bread, pretzels, ice cream, and cake
- High Energy Density 4.0-9.0: Crackers, chips, candy, cookies, nuts, butter and oils

Energy Density

- Calories fewer than grams: go for it! You can eat satisfying portions
- Calories the same or up to twice as many grams: Use portion control strategies
- Calories more than twice as many grams: Limit portions
The shortcut method to E.D.:

* If the food has **fewer calories than grams**: Eat until you are satisfied, this is a good food choice.

* If the food has the **same number of calories as grams**, or has up to **twice as many calories as grams**: Don’t go overboard, these are moderate E.D. foods and you should be moderate with them.

* If there are **more than twice as many calories as grams**: Be very, very careful! Too many bites, and these may bite you later.
Fiber

A form of carbohydrate that cannot be fully digested

Carbohydrates are critical for heart health and serve as the body’s main source of energy, and valuable nutrients

Fiber increases satiety by lowering energy density of foods and by slowing rate that food passes through the digestive system

Fiber Intake, Satiety & Weight Management

Increased fiber intake is associated with increased satiety and decreased energy intake

Fiber-rich foods take a lot of chewing, enhancing sensory stimulation

Fiber slows the passage of foods through the digestive system

An additional 14g/day fiber is associated with a 10% decrease in energy intake

There is general agreement that increasing fiber is an effective strategy for weight management

Fiber

- 20 grams per 1,000 calories
- Most people should try for around 35 grams per day
- Soluble fiber helps to reduce cholesterol – beans, oats, barley, fruit, vegetables
- Adds chewing satisfaction

Fiber

- Whole foods – fruit instead of juice
- Add fruits/vegetables to meals/snacks
- Eat whole grains – 100% whole grains, breads, cereals
- Brown rice, whole wheat pasta
- Kidney beans in soups, stews, salads, pasta
- Can use supplements – Metamucil, Konsyl, Benefiber, Slim Styles
Protein

- High protein foods can decrease hunger and prolong satiety more than foods high in either carbs or fat
- Getting enough protein is critical for weight loss and maintaining muscle mass while losing weight
- 0.4 - 0.8 grams per pound of body weight: 150 pounds = 60 – 120 grams protein per day

Protein

- Choose lean portions of poultry, beef, pork, seafood, low-fat dairy, egg whites, tofu, legumes
- Combine them with whole grains, vegetables, fruits
- Eat a good source of low-fat protein at all meals and snacks
- Snacks: Greek yogurt with fruit, lean deli slices and apple, veggies and hummus dip, apple and almonds
Choose lower fat – not NON FAT

- Fat adds flavor/texture/nutrients to food
- Twice as many calories as carbs, protein
- Choose small portions of healthy fats: fish, nuts, avocado, olives
- Lower fat dressings, dips
- Broth based soups
- Saute in broth, wine instead of butter

Choose lower fat

- Use lots of herbs/spices/lemon
- Salsa, mustard, hot sauce
- Bake, broil, roast, steam, grill
- Use cooking spray
- Lightly stir-fry or saute in small amounts of oil: walnut, olive, sesame
Strategies for weight loss

- Research shows that eating 100 calorie bowl of broth-based soup or a green salad at start of meal takes edge off hunger and less calories are consumed in entire meal.
- Add vegetables to favorite mixed dishes: chili, stew, even macaroni and cheese.
- Same portion of food as usual, but less calories.

Strategies for weight loss

- Sneak vegetables and fruit into diet throughout the day: top cereal with berries, snack on apple or carrot sticks, put veggies in sandwich or casseroles, increase portion of veggies on plate.
- Create your plate! ¼ lean protein, ¼ whole grains, ½ non-starchy veggies.
Strategies for Weight Loss

- Plan ahead!
- Stock your pantry with variety of low-calorie dense foods so these are what you see when you get hungry
- Keep a food log – if you bite it, write it!
Slow Down

- Research shows you eat approx. 60 FEWER calories per meal when you slow pace.
- Slow down for all 3 meals – save 180 calories per day
- A whopping 6,300 at the end of 5 weeks!
- Equal to 24 McDonald’s hamburgers or 30 slices of thin-crust pizza at Pizza Hut!
- 6,300 calories = 2 pound weight loss

Strategies for Weight Loss

- Eat Mindfully
- Tune into hunger, appetite, satiety
- Pay attention to your food and the eating experience
- What is your body telling you?
- Satiety is both a measure of physical and psychological satisfaction
100 Measly Calories

- Consume 100 fewer calories per day – lose 10 pounds in one year
- Put mustard vs mayo on sandwich
- Try a “light” or fat-free salad dressing vs regular
- Substitute Canadian bacon for regular bacon
- Order thin pizza crust instead of pan pizza
- Use skim milk vs. cream in coffee
- Use a smaller bowl for your morning cereal
- Drink a low/no calorie drink instead of regular soda

100 Measly Calories

- Burn 100 more calories per day to lose 10 pounds in one year
- Set alarm 15 minutes early and go walk
- Stand up and walk around while on phone
- Take your kids out for a bike ride after dinner
- Go for a 15-minute walk on your lunch break
- Get off the subway or bus stop earlier and walk
- Walk on a treadmill while watching the news
How to save 150 kcal

- Reduce intake by
  - 1 oz potato chips
  - Substitute iced tea for regular soda

- Increase activity by
  - Running 1.5 miles in 15 min
  - Cycling 4 miles in 15 min

Alcohol and Intake

- Alcohol is high in energy density making it easy to consume excess calories
- Alcohol’s calories add on to the calories from foods
- Combining alcoholic beverages with high-fat, energy-dense foods promotes weight gain
- Alcohol lowers inhibitions, including those against overeating
Tips for Weight Loss

- Keep a food diary!
- Start your meal with vegetable soup or salad with low-fat dressing
- Study in *Appetite* showed that eating vegetable soup/salad 15 minutes before a meal resulted in 20% fewer calories being consumed at the meal
- Prepare entrees that are modified in energy density
- Replace high-fat meat lasagna with a lower-calorie lean meat/vegetable-rich lasagna

Tips for Weight Loss

- Study in *Obesity* 2012 showed lower energy entrees to be successful
- People who were served them instead of traditional entrees consumed fewer total calories during the entire day (16% less calories for men and 14% less for women)
- Use pureed fruits like bananas or canned pumpkin in pancakes or quick breads
- Add sautéed chopped vegetables to meatloaf and butternut squash puree to macaroni and cheese in order to increase nutrient density while decreasing calorie density
Optimal Nutrient Composition for Weight Management

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<tr>
<th>Element</th>
<th>Recommendation</th>
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<tr>
<td>Water</td>
<td>9 cups/day for women</td>
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<tr>
<td></td>
<td>12 cups/day for men</td>
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<tr>
<td>Fat</td>
<td>20-40% of total energy intake</td>
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<tr>
<td>Carbohydrate</td>
<td>40-45% of total energy intake</td>
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<tr>
<td>Protein</td>
<td>0.4- 0.8 g/lb of body weight</td>
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<tr>
<td>Alcohol</td>
<td>Limit to 1 drink / day for women</td>
</tr>
<tr>
<td></td>
<td>Limit to 2 drinks/ day for men</td>
</tr>
<tr>
<td>Fiber</td>
<td>20 grams per 1,000 calories –approx. 35 grams/day for most women, 40 for men</td>
</tr>
</tbody>
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So What Works? Guidelines For Success...

- Eat a low-fat diet
- Get lots of fiber/protein
- Eat breakfast every day
- Monitor progress
- Get high levels of physical activity, about an hour a day
- Eat five times/day
- Burn an average of 2,800 calories/week; 400 calories/day
- Limit intake of certain foods
- Maintaining weight loss is more difficult than losing it
Recommended Books

Volumetrics Eating Plan
   Barbara Rolls
Mindless Eating
   Brian Wansink
The Beck Diet Solution (Cognitive Behavioral Therapy)
   Judith Beck
Books by Geneen Roth – Emotional eating

Remember

- Eat less, chew more
- Sit less, move more
- Worry less, sleep more
- Rush less, play more
- Whine less, breathe more!
Let’s Get Cooking!