



Course: Weight Management and Nutrition
in the Lifecycle

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Lecture 2: Basic Principles of Obesity Treatment, Intervention and Contributing Factors

+ Class Objectives

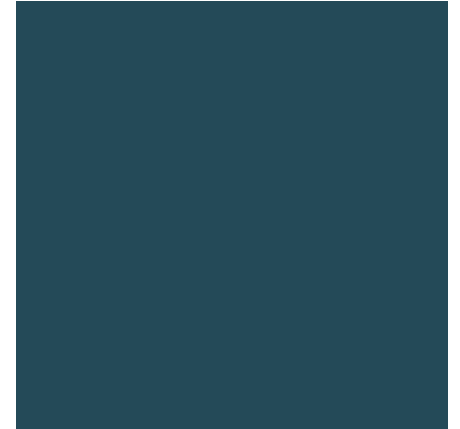


1. Understand the basic principles of obesity assessment and research.
2. State the significance of waist circumference in risk factors associated with being overweight and obese.
3. Understand the principles of treatment and intervention by qualified healthcare professionals.
4. Understand the role economics plays in obesity.
5. State the implications of a low carbohydrate diet in obesity.
6. Understand what a nutritional assessment of obesity entails.
7. Be able to state many contributing factors of obesity.

+ Outline

- ◆ Assessing Obesity
 - ◆ BMI and Waist Circumference
- ◆ Treatment Snapshot
 - ◆ Income
 - ◆ Fast-food
- ◆ Solving the Obesity Epidemic
- ◆ Position of the Academy of Nutrition and Dietetics: Weight Management
- ◆ Introduction to Low-Carb diets
- ◆ Portion Distortion





Assessing Obesity

+ Obesity and Overweight Assessment

- ◆ Obesity or overweight can increase one's risks for secondary health diseases such as hypertension, dyslipidemia, and diabetes.
- ◆ An overweight adult is defined as having a BMI (kg/m²) of 25-29.9, whereas obesity is defined as having a BMI of ≥ 30 .
- ◆ When defining obesity as a measure of body fat, The American Counsel on Exercise guidelines state that men are considered obese with 26% or more body fat and women are considered obese with 32% or more body fat.

+ Obesity and Overweight Assessment

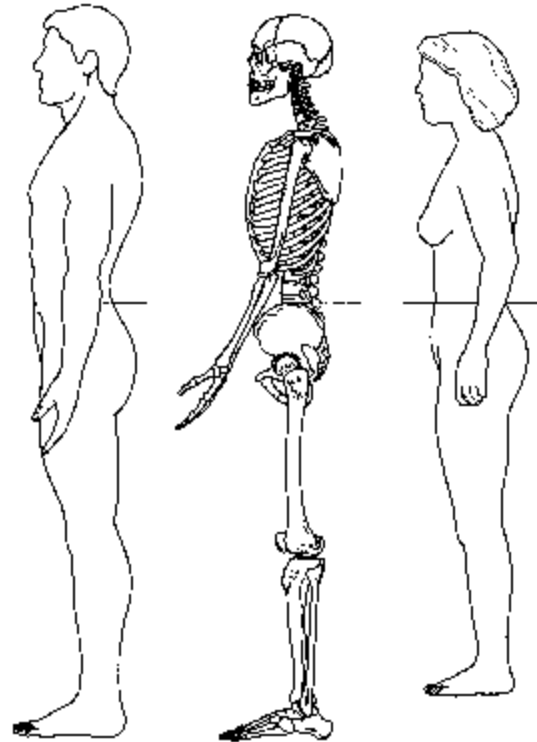
- ◆ The presence of excess fat in the abdomen that is not proportional to total body fat is an independent predictor of risk factors and morbidity.
- ◆ Determine the distribution of body fat by using waist circumference.
- ◆ Waist circumference positively correlates with abdominal fat and provides a clinically acceptable measurement for assessing a patient's abdominal fat before and during weight loss treatment.

+ Assessment of Overweight or Obese



- ◆ Use BMI as discussed in Session 1
- ◆ Waist circumference – very important for all health care professionals to assess
- ◆ Physicians, RDN, and RN should evaluate Risk Factors for obesity (comorbidities)
- ◆ Management - weight loss then weight management

+ Measuring Tape Position for Waist (Abdominal) Circumference



The proper location for the measuring tape is near the belly button.

+ Waist Circumference

- ◆ The waist circumference at which there is an increased relative risk is defined as follows:

HIGH RISK

- ◆ Men: >102 cm (>40 in.)
- ◆ Women: >88 cm (>35 in.)
- ◆ Waist circumference cut-points lose their incremental predictive power in patients with a BMI >35 kg/m² because these patients exceed the cut-points.



+ Waist Circumference



- ◆ A high waist circumference is associated with an increased risk for type 2 diabetes, dyslipidemia, hypertension, and CVD in patients with a BMI between 25 and 34.9 kg/m².
- ◆ Over time, monitoring changes in waist circumference in addition to BMI may be helpful because it can provide an estimated increase in abdominal fat even if the BMI is unchanged.
- ◆ In obese patients with metabolic complications, changes in waist circumference are useful predictors of changes in CVD risk factors.

+ Waist Circumference

- ◆ There are ethnic and age-related differences in body fat distribution that modify the predictive validity of waist circumference as a surrogate for abdominal fat.
- ◆ These variations may partly explain differences between ethnic or age groups in the power of waist circumference or waist-to-hip ratio (WHR) to predict disease risks.
- ◆ Ex: Asians are at higher metabolic risk with lower waist circumference and waist-to-hip ratios than Europeans.



+ Waist Circumference

- ◆ In some populations, waist circumference is a better indicator of relative disease risk than is BMI:
 - ◆ Example: Asian Americans or persons of Asian descent living elsewhere.
- ◆ Please click on http://www.nhlbi.nih.gov/guidelines/obesity/e_txtbk/txgd/4142.htm
 - ◆ Scroll down to **Classification of Overweight and Obesity by BMI, Waist Circumference, and Associated Disease Risk** to view a table which incorporates both BMI and waist circumference in the classification of overweight and obesity, and provides an indication of disease risk.



+ Waist to Hip Ratio

“The ratio can be measured more precisely than skin folds, and it provides an index of both subcutaneous and intra-abdominal adipose tissue.”

-Bjorntorp P. Fat cell distribution and metabolism. *Annals of the New York Academy of Sciences*, 1987, 499:66-72.

- ◆ Ratio of ≤ 0.8 in women and ≤ 1 in men indicates a cardiovascular risk
- ◆ Use the same waist circumference measurement and the hip measurement is taken at the widest point on the buttocks

$$\frac{\text{Waist circumference}}{\text{Hip circumference}} = \text{Waist-to-hip ratio}$$



+ Obesity Assessment

- ◆ The medical assessment of obesity should be done by the primary care physician and should include height (measured every 5-10 years), weight, and waist circumference.
 - ◆ Medical Nutrition Therapy should be provided by a Registered Dietitian Nutritionist.
- ◆ In addition to a medical assessment, a psychological assessment may be needed.
- ◆ This would screen for barriers to successful weight loss such as depression, post-traumatic stress disorder, anxiety, bipolar disorder, addictions, binge eating disorder, and bulimia.

+ Obesity Assessment (Cont.)



- ◆ A complete nutritional assessment would include current food intake, use of supplements, herbs, and over-the-counter weight loss aids, as well as meal and snack patterns.
- ◆ The weight and dieting history should include:
 - ◆ Age at onset of excess weight
 - ◆ Number and types of diets
 - ◆ Possible triggers of weight gain and loss
 - ◆ Range of weight change.

(National Institutes of Health and National Heart, Lung, and Blood Institute. Clinical Guidelines on the Identification, evaluation and treatment of Overweight and Obesity in Adults –The Evidence Report.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3233993/> accessed April 2015

+ Obesity Assessment (Cont.)



- ◆ An assessment of motivation and readiness for weight loss should be done in addition to assessing possible barriers to treatment such as:
 - ◆ Physical limitations
 - ◆ Knowledge and skills
 - ◆ Presence or absence of support systems (family, friends)
 - ◆ Time availability
 - ◆ Financial considerations

+ Obesity Assessment (Cont.)

- ◆ Current physical activity level should be assessed, including exercise frequency, intensity and duration, as well as the individual's attitude toward physical activity.
 - ◆ Is the patient motivated to begin a program of increased physical activity?
 - ◆ What are the barriers to beginning an exercise program?
 - ◆ Ask them what activities they enjoy and would be willing to incorporate into their day.
- ◆ Since Americans are engaged in more sedentary activities, increasing physical activity will help contribute to effective weight management.



+

Lingo!

Cultural sensitivity is important
when discussing weight.



Positive Ways to Discuss Weight with Low-income Parents and Children:

- Among low-income women the terms “overweight” and “obese” are offensive and describe people who are unmotivated and depressed and who do not care about themselves
 - Obese is thought to be an extreme weight such as 500 lbs and being immobile.
 - Being overweight is a matter of opinion.
 - If a woman is “comfortable in her own skin” and “feels healthy”, she is not overweight.
- The use of the terms “obese” and “overweight” in the low-income population seems to elicit such strong feelings as to distract from the intended health message.



Positive Ways to Discuss Weight with Latino Parents and Children:

- “Demasiado peso para su salud” (too much weight for his/her health) was the only phrase for excess weight that was consistently identified as motivating and inoffensive by Spanish-speaking parents.
- “Sobrepeso” (overweight), a commonly used term among health care providers, was motivating to some parents but offensive to others.
- English-speaking parents had mixed reactions to “unhealthy weight,” “weight problem,” and “overweight,” finding them motivating, confusing, or insulting.
- Parents found “fat” “gordo” and “obese” “obeso” consistently offensive.
- Most participants (54 parents in 6 focus groups) found growth charts and the term “BMI” confusing.
- Parents consistently reported that providers could enhance motivation and avoid offending families by linking a child’s weight to health risks, particularly diabetes.



Obesity Assessment (Cont.)



- ◆ Regardless of the effects exercise has on weight loss, there is strong evidence that physical activity increases cardiorespiratory fitness with or without weight loss.
- ◆ For effective weight management treatment, the client should be assessed by a multidisciplinary team, including a physician, registered dietitian, exercise physiologist, and a behavioral therapist.

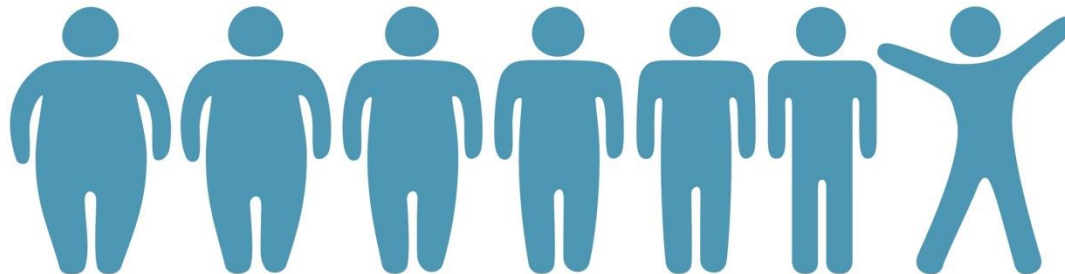


+ BMI: Summary of Elevated Effects

- ◆ Quality of life scores were optimal when BMI was in the range of 20 to 25 (kg/m²).
 - ◆ Some studies suggest that achieving a weight in this range will maximize a person's subjective sense of well-being.
- ◆ Being overweight or obese is a condition that substantially raises the risk of morbidity from hypertension, dyslipidemia, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, and endometrial, breast, prostate, and colon cancers.
- ◆ Higher body weights are also associated with increases in all-cause mortality.
- ◆ Obese individuals may also suffer from social stigmatization and discrimination.
- ◆ As a major contributor to preventable death in the United States today, overweight and obesity pose a major public health challenge.

+ Waist Circumference & Waist-to-Hip Ratio Summary

- ◆ Both are related to elevated risk of all-cause mortality, throughout the range of adult BMI.
- ◆ Both are strongly predictive in young and middle-aged adults compared to older people and those with low BMI.
- ◆ Waist circumference alone could replace waist-to-hip ratio and BMI as a single risk factor for all-cause mortality.





Treatment Snapshot

+ Types of Therapies

- ◆ Diet
- ◆ Physical activity
 - ◆ <http://www.cdc.gov/physicalactivity/index.html>
- ◆ Behavior therapy
- ◆ Pharmacotherapy (drugs)
 - ◆ Not covered in the scope of this course



+ Treatment by a Registered Dietitian and Physician Includes:

- ◆ Assess, counsel, treat
- ◆ History: how long has BMI been ≥ 25 ?
- ◆ Measure weight, height, waist circumference, waist-to-hip ratio, and BMI
- ◆ Other risk factors: diabetes, heart disease, smoking
- ◆ Define goals: determine readiness to change
- ◆ Track progress
- ◆ Assess successes & failures
- ◆ Maintain counseling

+ Behavioral Assessment

- ◆ Reasons for desired weight loss
- ◆ Events that lead them to want to lose weight
- ◆ Stress level
- ◆ History of eating disorder [refer out to specialist team]
- ◆ Unrealistic expectations
- ◆ Rate of weight loss



+ Obesity & Diets



- ◆ Given the high prevalence of obesity and lack of proven long-term effects of most nonsurgical conventional approaches, public interest in alternative dietary approaches to weight management has increased.
 - ◆ Making restrictive diets popular choices for weight loss.
 - ◆ Compliance in the short term depends on the type of macronutrient being restricted, and it can lead to slightly more weight loss in the short term, but may not be maintained long-term.
- ◆ Research has shown that it is mostly reduced energy intake, not restricting certain macro-nutrients, that determines weight loss.



Obesity & Nutrition Counseling



- ◆ When counseling clients I base their health changes on their diet, weight, health, family history and personal goals.
- ◆ After addressing nutrient deficits, current research comes into play.
- ◆ Many overweight individuals are basically consuming too much food
- ◆ Many overweight individuals are eating too many empty filler foods like snack foods, foods high in processed flour and sugar, along with too little produce.
- ◆ Achieving and maintaining a healthy weight and a healthy body is a balancing act that takes time, energy expenditure and small changes to lead to better health.



Have you
tried making
veggie
noodles?

How many fruit and
vegetable servings do
you have a day?

+ Obesity and Income



- ◆ Low income:
 - ◆ Limited affordable fresh produce and other healthy foods.
 - ◆ Poor access to grocery stores, reliance on local convenience stores [for shopping] with limited selections of healthy foods.
 - ◆ Over-dependence on cheap, high-fat and sugary foods, and eating at fast-food outlets.
 - ◆ These poor eating habits cause individuals to become overweight or obese.

+ Obesity and Income

- ◆ Now there is more equality in becoming overweight or obese
 - ◆ As large portion sizes and fast, convenient foods have grown in popularity and prevalence, obesity no longer discriminates.
 - ◆ More people eat outside of the home, and more than 70% of eating out occasions are at fast-dining restaurants.
- ◆ Obesity is growing at the highest rate in those with the highest incomes.
- ◆ Obesity prevalence now is similar across all income categories, with obesity prevalence in the highest income group rapidly approaching that of the lowest income group.



Learn more about obesity in low income areas



- Food Research and Action Center:
<http://frac.org/initiatives/hunger-and-obesity/why-are-low-income-and-food-insecure-people-vulnerable-to-obesity/>

- Lower Income Neighborhoods Associated with Higher Obesity Rates -
<http://www.sciencedaily.com/releases/2008/02/080207163807.htm>

+ Obesity and Income

Income Level	Obesity Prevalence 1971-1974	Obesity Prevalence 2001-2002	Change Over Time
<\$25,000	22.5%	32.5%	+144%
\$25,000-\$39,999	16.1%	31.3%	+194%
\$40,000-\$59,999	14.5%	30.3%	+209%
>\$60,000	9.7%	26.8%	+276%

+ Obesity and Fast Food

- ◆ Burger King's "Ultimate Breakfast Platter" has 1450 calories, 80g fat, 30 g sat fat, 2930 g sodium scrambles eggs, sausage, hash browns, 3 pancakes with syrup.
- ◆ 17 of the highest calorie chain restaurants:
<http://www.businessinsider.com/17-highest-calorie-chain-restaurant-items-2013-5>
- ◆ Check out the calories of your favorite restaurants on-line, see what's menu items are the most surprising.
- ◆ Read more about the toxic food environment in our nation:
<http://www.hsph.harvard.edu/obesity-prevention-source/obesity-causes/food-environment-and-obesity/>

+ Obesity and Fast Food

- ◆ Fast food such as double cheeseburgers, chicken nuggets, French fries, and milkshakes are typically high in fat, salt, and calories.
 - ◆ The healthier options, like salads and grilled chicken sandwiches, are often overlooked.
 - ◆ Try making healthier versions of favorites like tater tots: <http://www.superkidsnutrition.com/cauliflower-tots-sweet-potato-cakes/>
- ◆ When/if you go to a fast-food store, see how many people are ordering the healthy options.
 - ◆ These items need to be promoted more to individuals and families who frequent these restaurants.



+ Obesity and Snack Foods

- ◆ Starting from early childhood, many parents introduce special occasion foods that are high in salt, sugar, and processed ingredients, which sets the bar low for healthy foods in adulthood.
 - ◆ Special foods then become a daily occurrence.
- ◆ Many of these “special foods” become snacks we regularly eat as adults, which can pack on the pounds.
 - ◆ Many people don’t read food labels and assume these are healthy choices based on the marketing of the snack food.
 - ◆ Reading labels and choosing low fat for dairy and more whole foods is key for weight loss.





Solving the Obesity Epidemic



To solve obesity, we must change what people want.

We need to make healthy the new social norm! Restaurants and companies will want to offer healthier foods to consumers because consumers are demanding it.

Children must be taught at a young age that healthy food tastes good, is good for our health, and is a good choice to make each day. Exposure to new nutrient-dense foods and tastes will set the foundation for a healthy future.



Changing What People Want



- ◆ This is a hefty task.
- ◆ Starting from early childhood, we no longer understand what a normal plate size meal looks like.
 - ◆ <http://hp2010.nhlbihin.net/portion/>
 - ◆ <http://www.nhlbi.nih.gov/health/public/heart/obesity/wecan/learn-it/distortion.htm>
- ◆ Larger Portions have a perceived higher value
 - ◆ Take half home for another meal instead of adding a notch to your belt size.
 - ◆ Problem: add 20 cents to a soda and you get 20% more- it's enticing and cheap to consume more calories.

+ Weight Loss in Men Vs. Women

- ◆ Men are typically larger and taller than women, thus their calorie needs are higher.
- ◆ Genetically, men have more muscle mass than women.
 - ◆ Muscle requires more energy and burns more calories than fat tissue.
 - ◆ Even when a man and a woman are the same height and weight, a man can eat more than a woman without gaining because of the increased muscle mass.
 - ◆ Men often lose weight faster by cutting back on fewer calories than women would have to for the same results.

+ Weight Loss in Men Vs. Women



- ◆ As we age, a steady decline in muscle tissue occurs in both men and women.
- ◆ People often become less physically active as they age, which decreases muscle mass further.
 - ◆ Caloric needs decrease with decreasing muscle mass.
 - ◆ Many men find it easier to lose weight as well as meet their nutritional needs with a slight caloric decrease.

+ Weight Loss in Men Vs. Women

- ◆ Hormonal changes at menopause accelerate age-related muscle loss, contributing to the challenges of weight loss in women.
- ◆ Don't try to get to an unrealistic number on the scale by drastically reducing calories to 1000-1200/day.
 - ◆ This contributes to further muscle loss, resulting in decreased metabolism.
 - ◆ Instead, limit caloric intake by 100-200 calories/day.
- ◆ Consider strength-training exercises, which build muscle and slow down the percentage of muscle mass lost when dieting.
 - ◆ Whenever you lose weight you lose both muscle and fat.
 - ◆ Consider yoga poses like downward dog and other body weight resistance strengthening poses.

+ Weight Loss in Men Women

- Move more!
 - All movement, fitness, and energy expenditure can help with weight control.
 - One study showed that working out in a colder temperature resulted in consuming more calories (Med Sci Sports Exerc. 47:49:2015.)

Everyday Activities that Burn 150 Calories

- Washing & waxing a car (45-60 minutes)
- Washing windows or floors (45-60 minutes)
- Gardening (45-60 minutes)
- Walking (3 mph for 30 minutes)
- Bicycling (5 miles in 30 minutes)
- Dancing (30 minutes)
- Raking leaves (30 minutes)
- Water aerobics (30 minutes)

+ Eating and Lifestyle Issues that Contribute to Weight Gain

- The overweight and obesity issue is multifactorial
 - Genetics, lifestyle habits, or a combination of both
 - Endocrine problems, genetic syndromes, medications
- Life is so busy! Most of what we eat is quick and easy, but those foods are often high in fat and calories.
 - Portion sizes of foods that kids eat both at home and away from home have increased.
 - Soda, fruit drinks, excess juice, salty processed snacks, desserts, burgers, French fries, pizza, Mexican fast foods, and hot dogs.
- Families are no longer eating meals together (eating out more).
 - Family meals are associated with higher quality diets and healthier weights in children.
 - Kids who eat at least 3 meals a week with their families have higher fruit and vegetable intake and are more likely to eat breakfast.

+ Obesity and Genes



- ◆ There is increased interest in pursuing gene-environment interactions.
 - ◆ Why do some of us respond differently to certain stimuli than others?
 - ◆ Some examples of environmental influences of interest include drug exposure and nutrient ingestion.
 - ◆ We are already beginning to understand how our genes interact with the foods we eat.
 - ◆ In the future, we will be better equipped to individualize more effective preventive and therapeutic care.

This topic and Nutrition Genomics is discussed in detail in the “New in Nutrition Wellness” course.

+ Obesity and Genes

A Western-like fat diet is sufficient to induce a gradual enhancement in fat mass over generations [S]

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ABSTRACT

The prevalence of obesity has steadily increased over the last few decades. During this time, populations of industrialized countries have been exposed to diets rich in fat with a high content of linoleic acid and a low content of α -linolenic acid compared with recommended intake. To assess the contribution of dietary fatty acids, male and female mice fed a high-fat diet (35% energy as fat, linoleic acid: α -linolenic acid ratio of 28) were mated randomly and maintained after breeding on the same diet for successive generations. Offspring showed, over four generations, a gradual enhancement in fat mass due to combined hyperplasia and hypertrophy with no change in food intake. Transgenerational alterations in adipokine levels were accompanied by hyperinsulinemia. Gene expression analyses of the stromal vascular fraction of adipose tissue, over generations, revealed discrete and steady changes in certain important players, such as CSF3 and Nocturnin. Thus, under conditions of genome stability and with no change in the regimen over four generations, we show that a Western-like fat diet induces a gradual fat mass enhancement, in accordance with the increasing prevalence of obesity observed in humans.

- ◆ Exposure to high omega-6 diets over multiple generations showed increases in both size and number of fat cells contained within each generation, as well as increased insulin resistance
- ◆ Each successive generation can eat the same diet but could be getting fatter!

+ Another Helpful Resource

- ◆ The Practical Guide, Identification Evaluation and Treatment of Overweight and Obesity for Adults
 - ◆ National Institutes of Health, National Heart, Lung, And Blood Institute, North American Association for the Study of Obesity
- ◆ <http://www.nhlbi.nih.gov/guidelines/obesity/practgde.htm>



Journal of American Dietetic Association; Vol 109
No. 2 February 2009; p. 330-346

Position of the Academy of Nutrition & Dietetics: Weight Management

+ AND Position Paper Summary

- ◆ Lifestyle modifications in food intake and exercise remain the hallmarks of effective treatment, but are difficult to initiate and sustain over the long term.
- ◆ Any changes in dietary intake and exercise patterns which decrease caloric intake below energy expenditure will result in weight loss, but it is the responsibility of the dietitian to make sure the changes recommended are directed toward improved physiological and psychological health.
- ◆ A thorough clinical assessment should help define possible genetic, environmental, and behavioral factors contributing to weight status and is important to the formulation of an individualized intervention.
- ◆ The activation of treatment strategies is often limited by available resources and cost.



+ Biology

- ◆ Body weight is tightly regulated
- ◆ High levels of body fatness are induced by combinations of genetic, environmental and psychological influences (as discussed in Session One).



+ Leptin

- ◆ Leptin is a hormone that signals satiety and is secreted by fat cells. It regulates appetite, food intake and body weight.
- ◆ Nearly all individuals with obesity exhibit an excess of circulating leptin in direct proportion to their BMI.
- ◆ Obese individuals become “leptin resistant,” the circulating excess of leptin cannot send the message of satiety.
- ◆ With weight loss, fat cells are decreased, releasing less leptin, signaling a starvation response to the brain, and causing a hunger response in the individual.
 - ◆ Research on leptin is ongoing.
 - ◆ The Etiology of Obesity would be a separate course in itself.

+ Genetics

- ◆ Advancements in the field of genetics and obesity may lay the groundwork for the development of effective pharmacotherapy.
- ◆ Evidence for a strong genetic contribution to human obesity comes from a variety of sources.
 - ◆ Twin and familial aggregation studies suggest that genetic factors account for 60% to 80% of the predisposition to obesity.
- ◆ It is important to understand that there is a genetic propensity to gain weight.
- ◆ Genes haven't changed enough in 20 years to account for the alarming increase in overweight and obese individuals.
 - ◆ So it's also how your genes interact with your diet that can lead to a syndrome or disease.



+ Genetics



- ◆ Research on twins who have been raised living apart and in different environments shows similar weight status suggesting a genetic component.
- ◆ Animal studies have also linked a genetic component to obesity.
- ◆ Furthermore, as the ethnic makeup of the United States population undergoes rapid change, we may see differences in the relative genetic contributions to weight status.



Genetics



- ◆ Although environmental influences are certainly a factor in the reported ethnic differences in adiposity, significant differences remain even when socioeconomic status has been controlled.
- ◆ It is important to recognize that the genetic expression of obesity occurs in an environment that permits the expression of the propensity to store body fat.
- ◆ Fat cells (adipocytes) increase or decrease in size throughout life, the number of them mostly stays stagnant, except for two major replication periods, in the very early years of life and during puberty.
- ◆ Learn how fat cells are stored:
<http://science.howstuffworks.com/life/cellular-microscopic/fat-cell1.htm>

+ New Theories



- Although you need to eat more calories than you expend to become overweight, there are genetic differences in how fat is stored or the propensity to be stored.
- One such example is - nickel allergy and its relation to BMI:
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0123265>



+ Environmental

- ◆ Changes in the prevalence of obesity demonstrates that despite the importance of genetics in determining predisposition to obesity, development of obesity itself is strongly influenced by environmental triggers.
- ◆ There are many environmental contributions to the obesity epidemic, such as an overall decrease in physical activity and an increase in portion sizes.
- ◆ As technology advances, the use of convenient tools significantly reduces the energy used for activities of daily living and, therefore, total energy expenditure (discussed in Session 3).
- ◆ At the same time, there has been an increase in food availability and food variety.



+ Environmental

- ◆ Our lifestyles have become increasingly stressful, busy and task oriented.
- ◆ Americans are working longer hours outside the home, often with longer commutes, and have increased scheduled activities, limiting the time and emphasis on food planning and preparation.
- ◆ Inconsistent and rushed patterns of eating occur often, displacing planned family meals.
- ◆ Increased portion size and caloric consumption with decreased physical activity accompanied by a society which places a high value on being thin contributes to the “diet mentality” and “diet craze” instead of embracing a healthy lifestyle.



+ Goals of Weight Management Interventions

- ◆ The clinician needs to avoid overpowering advice which promotes a “do as I say” relationship and offer empowering advice such as “pay attention to what you want to do; trust yourself in this process.”
 - ◆ Help clients identify their goals.
 - ◆ Teach and support them in setting realistic and achievable goals.
- ◆ With this attitude, the provider and the patient will develop a relationship of shared responsibility.
- ◆ Realistic expectations, both short and long-term, may be fostered through a discussion about healthy weight (versus an ideal body weight) and the benefits of small but sustainable weight loss accompanied by a long-term approach towards a healthier lifestyle.

+ Goals of Weight Management Interventions

- ◆ Prevention of further weight gain in the individual with a steady decrease in his or her weight.
- ◆ Varying degrees of improvements in physical and emotional health, maintainable weight losses, or more extensive weight loss achieved through sensible and tolerable eating and exercise behaviors.
- ◆ Psychological foundation for a non-dieting approach toward health – making healthier lifestyle choices every day and avoiding the “diet mentality” discussed in Session 1.
 - ◆ Improvements in eating, exercise, and other behaviors apart from any weight loss.





Goals of Weight Management Interventions



- ◆ Expectations and recognition of the time required to make sustainable behavior changes must also be discussed.
- ◆ Patient goals need review, to ensure that potential patients are making informed decisions regarding successful treatment.



Goals of Weight Management Interventions



- ◆ Health can be improved with relatively minor weight loss.
 - ◆ A weight loss of as low as 5% to 10% may improve health risks related to excessive body weight, including improvements of blood cholesterol, blood sugars and blood pressure.
 - ◆ A challenge to healthcare providers is helping patients accept a 5 to 10% weight loss.
- ◆ Some patients, encouraged by a “thin obsessed” society, want to set unrealistically low weight goals, likely because of societal pressures.
 - ◆ This can lead to failure, and then complete abandonment of healthy lifestyle changes.
 - ◆ Patients need to set attainable goals so that they stay motivated.

+ Healthy Weight Loss Guideline Resources

- See Healthy People 2020, Nutrition and Weight Status, Interventions and Resources
 - <http://www.healthypeople.gov/2020/topics-objectives/topic/nutrition-and-weight-status/ebrs>
- See the CDC recommendation's for weight loss:
 - http://www.cdc.gov/HEALTHYWEIGHT/LOSING_WEIGHT/INDEX.HTML

+ Goals of Weight Management Interventions

- ◆ The NIH guidelines for weight management emphasize the need for both proper nutrition and increased physical activity for weight control.
 - ◆ Minimum of 30 min per day of moderate intensity exercise 7 days a week.
 - ◆ Keeping the weight off: <http://www.nwcr.ws/Research/default.htm>
- ◆ Exercise has been determined to be important in weight/fat loss, prevention/treatment of obesity, maintenance of blood glucose, decrease of plasma insulin concentrations, and maintenance of muscle mass.
- ◆ Working with a qualified personal trainer can help establish a fitness plan.
 - ◆ RDNs network with qualified personal trainers and vice versa.



Goals of Weight Management Interventions



- ◆ Since exercise induces a decrease in circulating insulin levels it causes an increase in glucose utilization and increased insulin sensitivity.
- ◆ Physical training (fitness and regular exercise) can be considered to play an important, if not essential role in the treatment and prevention of insulin insensitivity.
- ◆ The protective mechanisms of physical activity include:
 - ◆ Regulation of body weight (decrease risk of obesity).
 - ◆ Reduction of insulin resistance, hypertension, atherogenic dyslipidemia and inflammation.
 - ◆ Enhancement of insulin sensitivity, glycemic control, and fibrinolytic and endothelial function.
- ◆ Learn about insulin resistance:
http://www.superkidsnutrition.com/cd_whatinsulin/



Introduction to Low Carb Diets

+ Obesity and Low Carb Diets

- ◆ Low-carb diets remain popular because people lose weight.
- ◆ They cut down on portion sizes, and refrain from eating highly-refined foods, processed foods, refined flour, and sugar. On a low carb diet, foods that are high in calories like sugar sweetened beverages, bagels, muffins are eliminated.
- ◆ No wonder they lose weight!





Obesity and Low Carb Diets



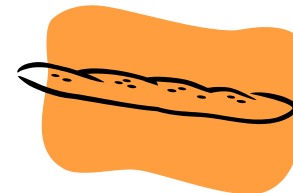
- ◆ Among the most popular [alternative] diets are low-carbohydrate, high-protein, high-fat diets.
- ◆ There is no universal definition for low-carb diets.
 - ◆ Most often consists of <50g carbohydrate/day or <10% of energy from carbohydrates with the following macronutrient distribution:
 - ◆ Less than 10% carbohydrate, 25%-35% protein, and 55% to 65% fat.
- ◆ Due to the high-fat and high-cholesterol nature of these diets, there is concern regarding the potential adverse effects on cardiovascular disease risk.
- ◆ Many people who state they're on a low-carb diet have essentially only stopped eating junk food and refined carbohydrates and aren't restricting their levels to <50g.
 - ◆ Many people forget that fruits and vegetables are also carbohydrates.

+ Obesity and Carb diets

- One study of 148 obese men and women were fed either a low-carb diets (less than 40g of carb/day) or a low-fat diet (less than 30% of calories from fat). After a year, the low-carb group lost more weight, 12 #'s vs 4#.
- However, the low carb group made the biggest changes (so it's not as surprising). There was no difference in waist size, blood pressure, blood sugar, insulin or bad cholesterol in either group, although triglycerides and HDL (good cholesterol) did improve in the low-carb group.
- Bottom line: This super low-carb diet is not sustainable, can leave you feeling tired, lacks phytonutrients vitamins and minerals. Instead cut out the refined carbs. It's more realistic to either cut out or limit foods like soda, sandwiches, refined noodles, pastries, fries, pizza etc.

+ Obesity and Low Carb Diets

- ◆ Many low-carbohydrate diets recommend:
 - ◆ Controlled amounts of nutrient-dense carbohydrate-containing foods (low-glycemic index [GI] vegetables, fruits, and whole grain products).
 - ◆ Elimination of carbohydrate-containing foods based on refined carbohydrate (white bread, rice, pasta, cookies, and chips).



+ Studies on Low Carb Diets

- ◆ Four randomized studies compared the short-term (≤ 12 months) effects of a low-carbohydrate diet and a calorie-controlled, low-fat diet (55% carbohydrate, 15% protein, and 30% fat) on weight, body composition, and cardiovascular risk factors in obese ($\text{BMI} \geq 30$) adults.
 - ◆ Two of these studies evaluated effects in healthy adults.
 - ◆ One examined effects in adults primarily with diabetes or metabolic syndrome.
 - ◆ One studied these effects in hyperlipidemic individuals.
 - ◆ Only 2 studies evaluated these effects over a 1-year period.

+ Studies on Low Carb Diets

- ◆ Across all 4 studies, participants following a low-carbohydrate diet lost significantly more weight than those following a low-fat diet during the first 6 months of treatment.
- ◆ However, differences in weight did not persist at 1 year.
- ◆ Foster *et al* observed weight regain in both groups after 6 months, with a greater regain in the low-carbohydrate group.
 - ◆ While participants in one study of the low-carbohydrate group did not regain weight, those in the low-fat group continued to lose weight after 6 months, resulting in similar weight losses at 1 year.



+ Studies on Low Carb Diets

- ◆ Three studies assessing dietary intake suggest that:
 - ◆ Although participants in the low-carbohydrate group were not instructed to limit their energy intake as was the conventional group, the low-carb group consumed fewer calories than they did at baseline.
- ◆ Differences in caloric intake between groups were not statistically significant.
- ◆ Differences in the types of food consumed, resulting in a very different macronutrient distribution (i.e., higher protein and fat content), may have contributed to a spontaneous reduction in energy intake in the low-carb group
 - ◆ There is evidence that protein maintains satiety longer than foods with carbohydrates or fat.



+ Low Carbohydrate Diets



- ◆ An energy-restricted, high-protein, low-fat diet provides nutritional and metabolic benefits that are equal to and sometimes greater than those observed with a high-carbohydrate diet.
- ◆ The high-protein portion is included because some research has shown that a higher protein diet increases satiety in overweight individuals trying to achieve weight loss.

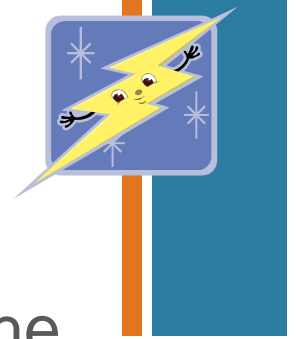


Obesity and Low Carb Diets



- ◆ Findings from previous studies suggest that high-protein and low-Glycemic Index diets composed of foods high in protein and fiber (i.e., red meats, poultry, fish, cheese, beans, whole grains, and certain vegetables) are more satiating and may make adherence to a weight-loss program easier.
- ◆ The structure of the low-carbohydrate diet with clear boundaries about what is allowed (outlined above) may play an important role in decreasing food intake.
- ◆ *Remember Session 1 –limiting a food group helps with short term weight loss as there is less variety*

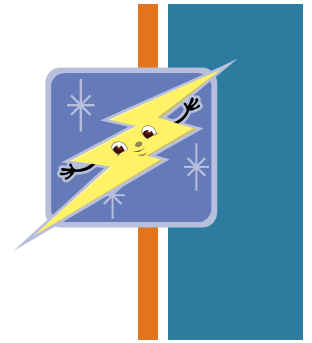
+ Low Carb Diets



- ◆ A principal concern with a low-carb diet is that the high-fat content may adversely affect serum lipids and increase risk of cardiovascular disease.
- ◆ However, a systematic review and meta-analysis of 17 studies which included 1,141 obese patients found that a low-carb diet was associated with decreases in body weight, BMI, abdominal circumference, systolic and diastolic blood pressure, plasma triglycerides, fasting plasma glucose, glycated hemoglobin, plasma insulin and plasma C-reactive protein, as well as an increase in HDL-cholesterol. LDL-cholesterol and creatinine did not change significantly, whereas limited data exist concerning plasma uric acid.
- ◆ Low-carb diet was shown to have favorable effects on body weight and major cardiovascular risk factors, however longer term studies are needed.

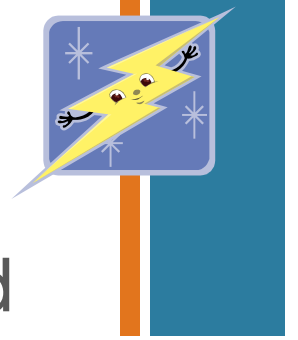


Problems with Low Carb Diets



- ◆ Another concern is that low-carb diets are often associated with lower produce consumption, which lowers the content of disease fighting phytochemicals (discussed in Functional Food Course).
- ◆ However, diets high in fruit and vegetables are associated with lower disease risk!
- ◆ Remember, low-carb doesn't mean low-vegetable!
- ◆ Further reading:
 - ◆ Hite et al. Low-carbohydrate diet review: shifting the paradigm. *Nutr Clin Pract.* 2011;26:300-308

+ It's about adherence!



- ◆ Trials comparing different diets have found similar weight loss after 6-24 months, with patient adherence considered the most important factor for successful outcomes
- ◆ Authors of the A to Z Weight-loss Study concluded that “strategies to increase adherence may deserve more emphasis than the specific macronutrient composition of the weight loss diet itself in supporting successful weight loss.”

+ Low Carb Diet-Bottom Line

- ◆ Low Carb diets are good for weight loss when you eliminate refined carbohydrates seen in white flour bread products, like cookies cakes, or plain white bread.
- ◆ Eliminating sweets like ice cream, candy, and baked goods will lower sugar intake and further weight loss.
- ◆ Following a high protein diet has been shown to have satiating effects, but is not risk free, recent evidence has shown that it may actually increase the risk of type 2 diabetes.
- ◆ With so many different recommendations, how can we know what to do?
 - ◆ Balance is key, eating healthy sources of carbs, fat, and protein is the best diet.
 - ◆ Check out the DASH diet –this is a great diet for most people:
<https://www.nhlbi.nih.gov/health/health-topics/topics/dash>



Portion Distortion

- 
- + The Websites Listed throughout this course have great PDF files and PowerPoint Files you Can Use with Clients or to learn more yourself. Take advantage of them.

**TO DOWNLOAD THE UPCOMING
SLIDES: GO TO:**

<http://hp2010.nhlbihin.net/portion/>

TO DOWNLOAD THESE SLIDES : GO TO:

<http://hp2010.nhlbihin.net/portion/> or read here



U.S. Department of
Health and Human
Services



Portion Distortion

Do You Know How Food Portions Have Changed in 20 Years?

National Heart, Lung, and Blood Institute
Obesity Education Initiative



National Heart, Lung,
and Blood Institute



BAGEL



20 Years Ago



140 calories
3-inch diameter

Today



How many calories
are in this bagel?



BAGEL



20 Years Ago



140 calories
3-inch diameter

Today

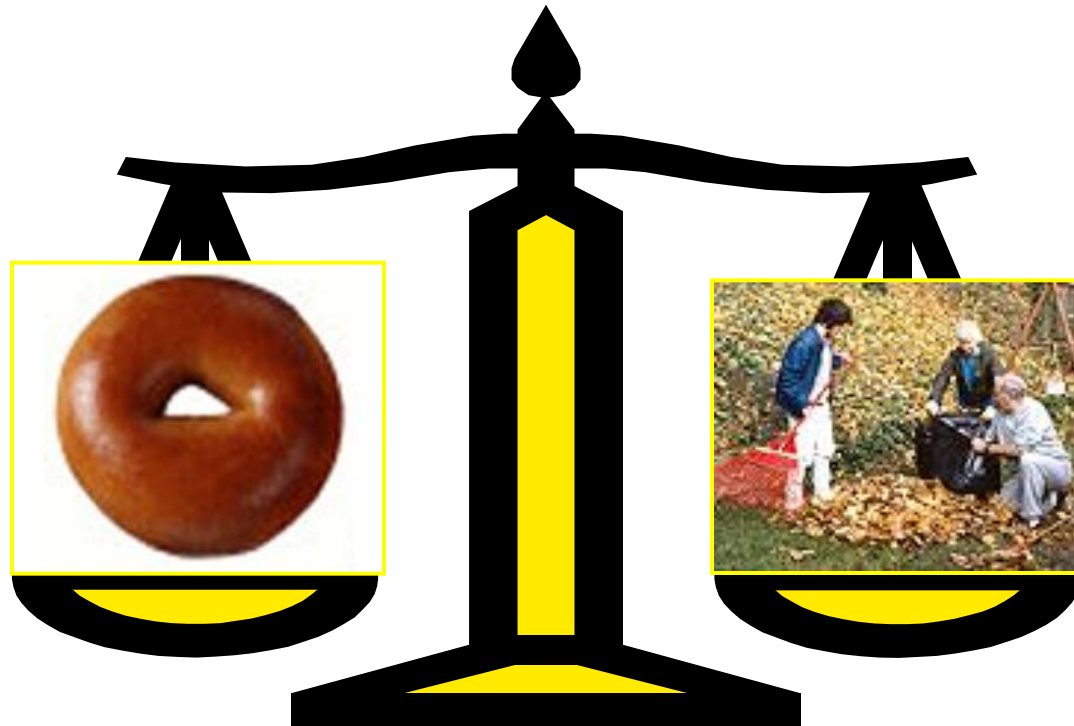


350 calories
6-inch diameter

Calorie Difference: 210 calories

Maintaining a Healthy Weight is a Balancing Act

Calories In = Calories Out



How long will you have to rake leaves in order to burn the extra 210 calories?*

*Based on 130-pound person



Calories In = Calories Out



If you rake the leaves for **50 minutes** you will burn the extra **210 calories**.*



*Based on 130-pound person

CHEESEBURGER

20 Years Ago



333 calories

Today



How many calories are in today's cheeseburger?

CHEESEBURGER

20 Years Ago



333 calories

Today

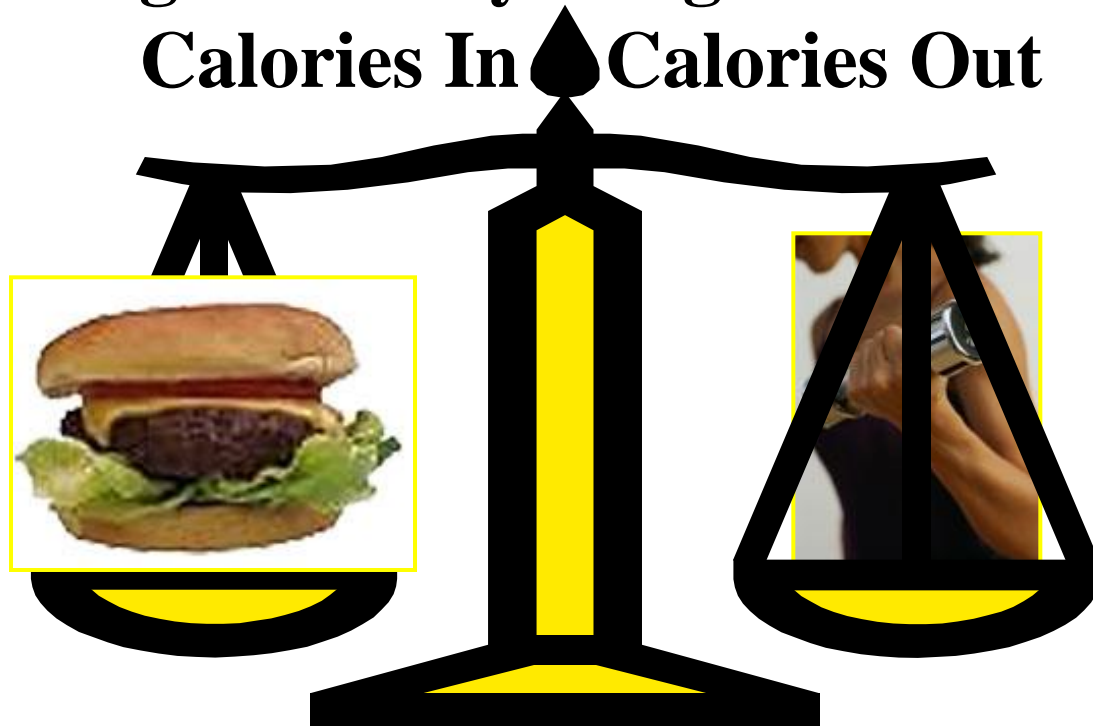


590 calories

Calorie Difference: 257 calories

Maintaining a Healthy Weight is a Balancing Act

Calories In Calories Out



How long will you have to lift weights in order to burn the extra 257 calories?*

*Based on 130-pound person

Calories In = Calories Out



If you lift weights for 1 hour and 30 minutes, you will burn approximately **257 calories**.*



*Based on 130-pound person

SPAGHETTI AND MEATBALLS

20 Years Ago



500 calories
1 cup spaghetti with sauce
and 3 small meatballs

Today

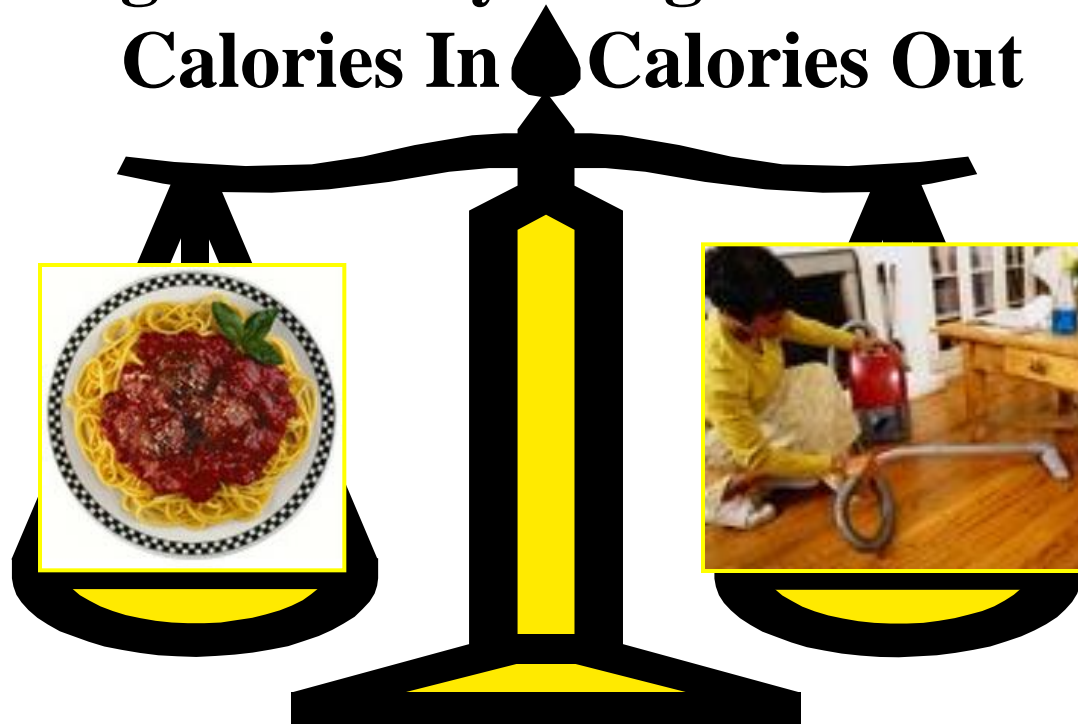


1,025 calories
2 cups of pasta with sauce
and 3 large meatballs

Calorie Difference: 525 calories

Maintaining a Healthy Weight is a Balancing Act

Calories In Calories Out



How long will you have to houseclean in order to burn the extra 525 calories?*

*Based on 130-pound person



Calories In = Calories Out



If you houseclean for 2 hours and 35 minutes, you will burn approximately 525 calories.*



*Based on 130-pound person





FRENCH FRIES

20 Years Ago



210 Calories
2.4 ounces

Today



**How many calories are in
today's portion of fries?**





FRENCH FRIES

20 Years Ago



210 Calories
2.4 ounces

Today



610 Calories
6.9 ounces

Calorie Difference: 400 Calories

Maintaining a Healthy Weight is a Balancing Act

Calories In = Calories Out



How long will you have to walk leisurely in order to burn those extra 400 calories?*

***Based on 160-pound person**

Calories In = Calories Out



**If you walk leisurely for 1 hour and 10 minutes
you will burn approximately 400 calories.***



***Based on 160-pound person**



SODA

20 Years Ago



85 Calories
6.5 ounces

Today



**How many calories are
in today's portion?**



SODA

20 Years Ago



85 Calories
6.5 ounces

Today



250 Calories
20 ounces

Calorie Difference: 165 Calories

Maintaining a Healthy Weight is a Balancing Act

Calories In Calories Out



How long will you have to work in the garden to burn those extra calories?*

*Based on 160-pound person

Calories In = Calories Out



If you work in the garden for 35 minutes, you will burn approximately **165 calories**.*



*Based on 160-pound person



TURKEY SANDWICH

20 Years Ago



320 calories

Today



How many calories are in today's turkey sandwich?

TURKEY SANDWICH

20 Years Ago



320 calories

Today

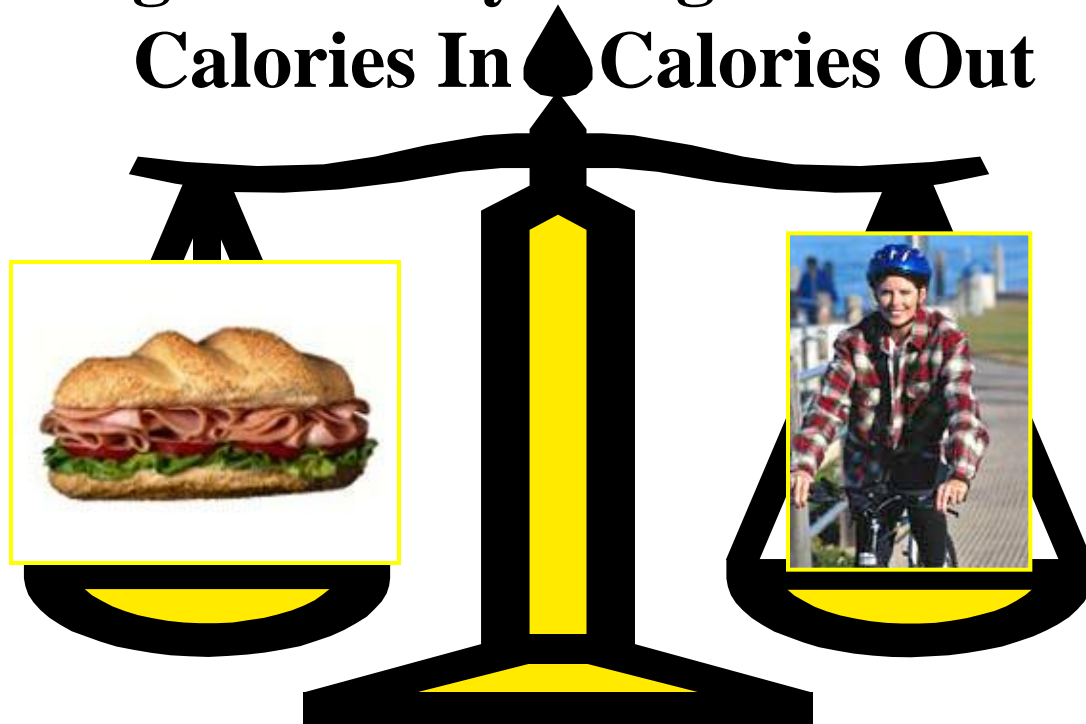


820 calories

Calorie Difference: 500 calories

Maintaining a Healthy Weight is a Balancing Act

Calories In Calories Out



How long will you have to ride a bike in order to burn those extra calories?*

*Based on 160-pound person



Calories In = Calories Out



If you ride a bike for **1 hour and 25 minutes**, you will burn approximately **500 calories**.*

***Based on 160-pound person**



Portion Distortion



Thank you for participating in
Portion Distortion!

For more information about Maintaining a Healthy Weight
visit www.nhlbi.nih.gov





U.S. Department of
Health and Human
Services



National Institutes
of Health



National Heart, Lung,
and Blood Institute

Portion Distortion II Interactive Quiz

Do You Know How Food Portions Have Changed in 20 Years?

National Heart, Lung, and Blood Institute
Obesity Education Initiative



COFFEE

20 Years Ago

Coffee
(with whole milk and sugar)



45 calories
8 ounces

Today

Mocha Coffee
(with steamed whole milk and mocha syrup)



How many calories
are in today's coffee?



Portion Distortion II Interactive Quiz



20 Years Ago

Coffee
(with whole milk and sugar)



45 calories
8 ounces

Today

Mocha Coffee
(with steamed whole milk and mocha syrup)



350 calories
16 ounces

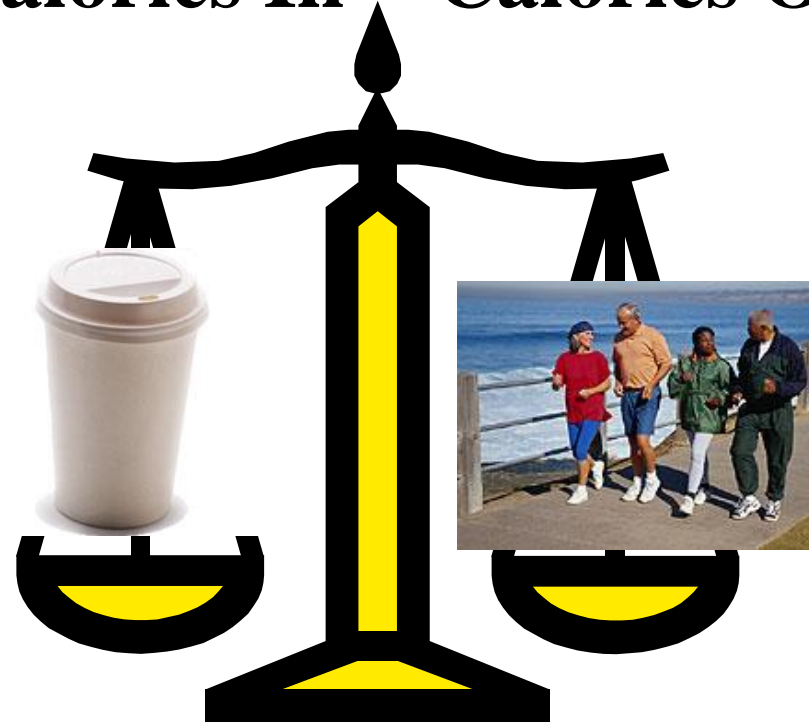
Calorie Difference: 305 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to walk in order to burn those extra 305 calories?*

*Based on 130-pound person





Portion Distortion II Interactive Quiz



Calories In = Calories Out



If you walk 1 hour and 20 minutes, you will burn approximately 305 calories.*



*Based on 130-pound person



Portion Distortion II Interactive Quiz



MUFFIN

20 Years Ago



**210 calories
1.5 ounces**

Today



**How many calories are
in today's muffin?**





MUFFIN

20 Years Ago



210 calories
1.5 ounces

Today



500 calories
4 ounces

Calorie Difference: 290 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to vacuum in order to burn those extra 290 calories?*

*Based on 130-pound person





Calories In = Calories Out



If you vacuum for 1 hour and 30 minutes you will burn approximately **290 calories**.*



*Based on 130-pound person



Portion Distortion II Interactive Quiz



PEPPERONI PIZZA

20 Years Ago



500 calories

Today



How many calories are in two large slices of today's pizza?





PEPPERONI PIZZA

20 Years Ago



500 calories

Today



850 calories

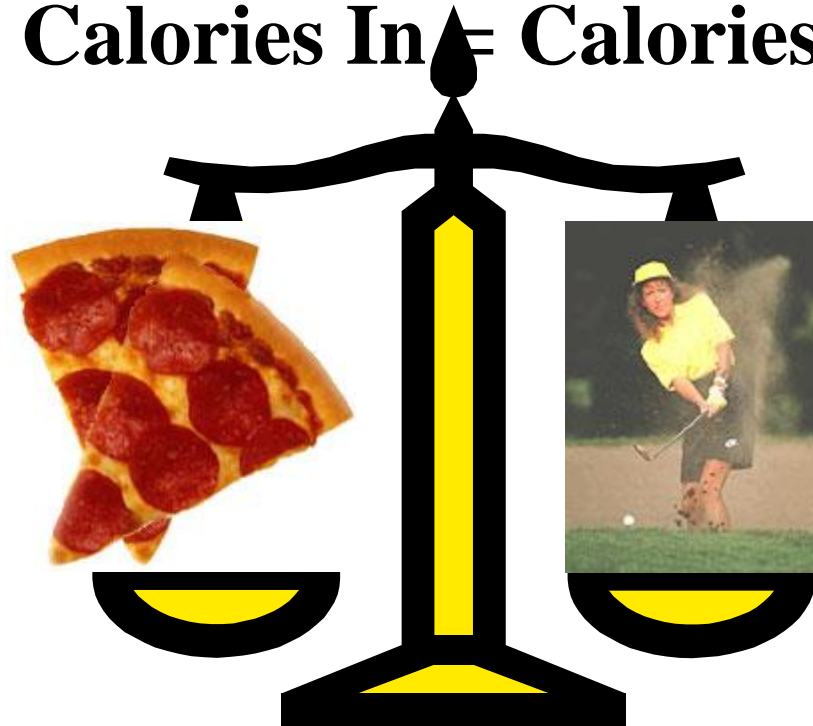
Calorie Difference: 350 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to play golf (while walking and carrying your clubs) in order to burn those extra 350 calories?*

*Based on 160-pound person





Calories In = Calories Out



If you play golf (while walking and carrying your clubs) for 1 hour you will burn approximately 350 calories.*



*Based on 160-pound person



Portion Distortion II Interactive Quiz



CHICKEN CAESAR SALAD

20 Years Ago

Today



390 calories
1 1/2 cups



How many calories are in
today's chicken Caesar
salad?



Portion Distortion II Interactive Quiz

CHICKEN CAESAR SALAD



20 Years Ago



390 calories
1 ½ cups

Today



790 calories
3 ½ cups

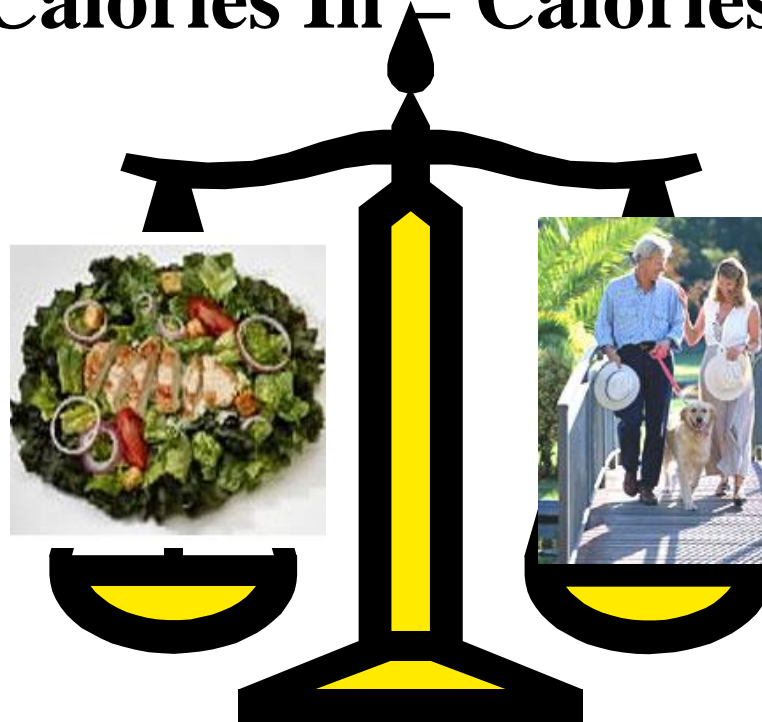
Calorie Difference: 400 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to walk the dog in order to burn those extra 400 calories?*

*Based on 160-pound person





Portion Distortion II Interactive Quiz



Calories In = Calories Out



If you walk the dog for 1 hour and 20 minutes, you will burn approximately 400 calories.*



*Based on 160-pound person



Portion Distortion II Interactive Quiz



POPCORN

20 Years Ago



270 calories
5 cups

Today



? **How many calories**
are in today's large
popcorn?



POPCORN

20 Years Ago



270 calories
5 cups

Today



630 calories
11 cups

Calorie Difference: 360 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to do water aerobics in order to burn the extra 360 calories?*

*Based on 160-pound person



Portion Distortion II Interactive Quiz



Calories In = Calories Out



If you do water aerobics for 1 hour and 15 minutes you will burn approximately 360 calories.*

***Based on 160-pound person**



Portion Distortion II Interactive Quiz



CHEESECAKE

20 Years Ago



260 calories

3 ounces

Today



How many calories are in today's large portion of cheesecake?



Portion Distortion II Interactive Quiz



CHEESECAKE

20 Years Ago



260 calories

3 ounces

Today



640 calories

7 ounces

Calorie Difference: 380 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to play tennis in order to burn those extra 380 calories?*

*Based on 130-pound person





Portion Distortion II Interactive Quiz



Calories In = Calories Out



If you play tennis for 55 minutes you will burn approximately 380 calories.*

***Based on 130-pound person**



Portion Distortion II Interactive Quiz



CHOCOLATE CHIP COOKIE

20 Years Ago



55 calories
1.5 inch diameter

Today



**How many calories are
in today's large cookie?**



Portion Distortion II Interactive Quiz



CHOCOLATE CHIP COOKIE

20 Years Ago



55 calories
1.5 inch diameter

Today



275 calories
3.5 inch diameter

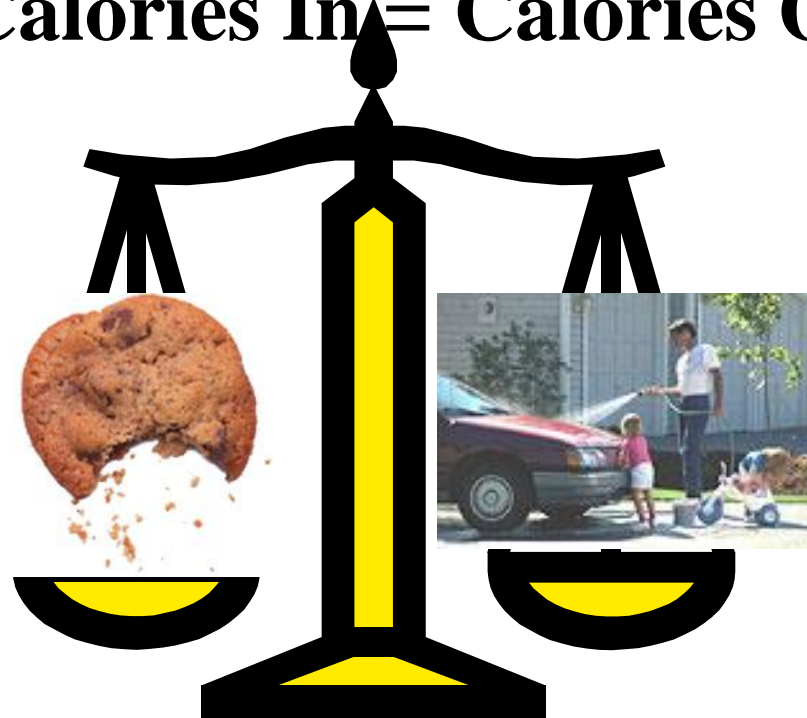
Calorie Difference: 220 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act Calories In = Calories Out



How long will you have to wash the car to burn those extra 220 calories?*

*Based on 130-pound person





Portion Distortion II Interactive Quiz



Calories In = Calories Out



If you wash the car for 1 hour and 15 minutes you will burn approximately **220 calories**.*

*Based on 130-pound person



Portion Distortion II Interactive Quiz



CHICKEN STIR FRY

20 Years Ago



435 calories
2 cups

Today



**How many calories are in
today's chicken stir fry?**





Portion Distortion II Interactive Quiz



CHICKEN STIR FRY

20 Years Ago



435 calories
2 cups

Today



865 calories
4 1/2 cups

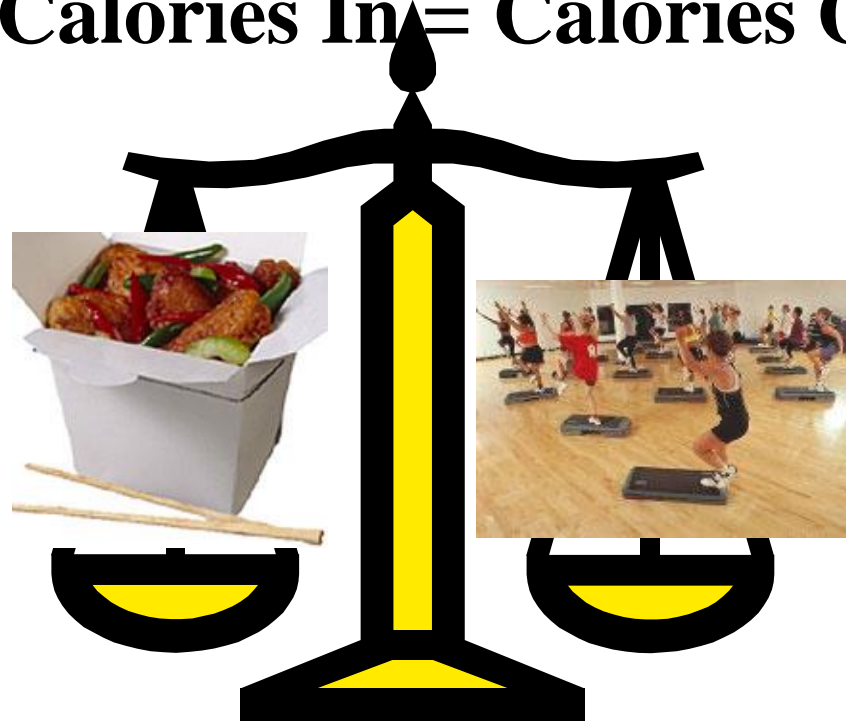
Calorie Difference: 430 calories



Portion Distortion II Interactive Quiz



Maintaining a Healthy Weight is a Balancing Act
Calories In = Calories Out



How long will you have to do aerobic dance to burn those extra 430 calories?*

*Based on 130-pound person



+

Portion Distortion II Interactive Quiz



Calories In = Calories Out



If you do aerobic dance for 1 hour and 5 minutes you will burn approximately 430 calories.*

***Based on 130-pound person**



Portion Distortion II Interactive Quiz



Thank you for participating in
Portion Distortion II!

For more information about Maintaining a Healthy Weight
visit www.nhlbi.nih.gov **_THIS IS A GREAT RESOURCE**





Thank You!