

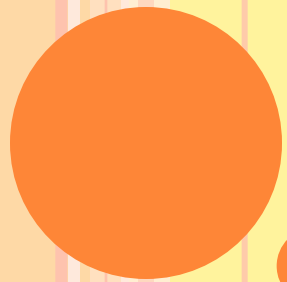
**SENSIBLE
WEIGHT LOSS**

OBESITY

**TERMINOLOGY
FACTS
STATISTICS
CAUSES
TREATMENTS**



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INTRODUCTION

OBESITY

- Nothing New...
 - Venus of Willendorf – 25,000 BC
 - In medicine: regarded as disease since 1700's.
- **EPIDEMIC** of obesity = **NEW!**
 - International Obesity Task Force.
 - Lack of understanding & lack of education in medical schools:
 - Obesity has become the 'disease of diseases' with far-reaching pathophysiology and co-morbidities.
 - Not just a 'will-power' issue anymore!



MYRIAD OF RESEARCH SUPPORTING THE IMPORTANCE OF PHYSICAL ATTRACTIVENESS

- Indicator of teacher judgment of student intelligence (Ritts et al 1992).
- Indicator of juror's judgment in simulated trials (Mazzella and Feingold 1994).
- Predicts job success and compensation levels (Morrow et al 1990); lower likelihood of being hired, getting raise, or getting promoted.
- Attractive people experience greater professional and personal success (Langlois et al 2000).
- Negative attitudes toward obese, even seen in young children; less likely to get help or favors.



TERMINOLOGY

OVERWEIGHT

- Excess amount of body weight, including fat, muscle, bone and water.
- BMI > 25.
- Athletes can be overweight but are usually not obese.
- Most people who are overweight are obese.

OBESITY

- Excess amount of body fat.
- BMI > 30.

BMI: simple but inaccurate!

These terms are used interchangeably.



ANOTHER DEFINITION...

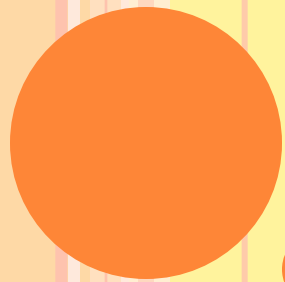
- Obesity = excessive accumulation of stored energy in the form of body fat.
- Survival instinct = extinct:
 - Body has stronger resistance against weight loss than defense against weight gain.
 - Western countries: constant food supply.
 - No need for physical activity (no hunting).
 - Limited today by our conscious cessation of eating, not by food supply running out.
 - Food consumption exceeds resting energy expenditure; indicating need for increased activity!



WAIST-HIP RATIO (WHR)

- Prediction of abdominal fat.
 - Men at risk if $WHR > 1.0$
 - Women at risk if $WHR > 0.85$
- How to measure?
 - In cm.
 - Waist: at midpoint between lower border of ribcage and upper border of pelvis.
 - Hip: at level of hip joint.
 - For consistency: measure from floor to level of measurement.
- Correlates best with increased risk for cardiovascular disease.





OBESITY & WEIGHT LOSS

FACTS & STATISTICS

SOME FACTS...



"I'm surprised no one's noticed this before, but your weight gain appears to be a result of your eyes simply being bigger than your stomach."

- Excess weight is #1 nutrition problem.
- Of 10 leading causes of death in US, being overweight is a risk factor for half.
- Estimated 35-55% of adult Americans and 20% of children are overweight.
- Obesity is not just cosmetic problem but a health hazard.
- + \$40 Billion/year on weight loss treatments.
- Cost to society is over \$100 billion/year.



HEALTH RISKS

○ Cancers & obesity:

- Association unclear, but statistics show definite link.
- Increased risk in postmenopausal women for breast & endometrial cancers; and prostate cancer for men.
- 50% of breast cancer is diagnosed in obese women.
- Mortality rate is 1.5 times greater for some cancers in overweight women.
- High-fat, low-fiber diets indirectly related to colon cancers.

○ Diabetes:

- 80% of people with type 2 diabetes is obese.
- Losing as few as 10 pounds can reduce risk by 30%.
- Reducing body weight by 5% significantly improves blood sugar levels & can improve insulin sensitivity.




○ Gallbladder disease:

- Increase in body weight drastically increases incidence of symptomatic gallstones.
- Middle-aged women who is 40% overweight has 33% greater chance of having gallstones.

○ Heart disease:

- AHA: obesity classified as major risk factor for heart disease and stroke.
- 70% of diagnosed cases are related to obesity.
- Weight gain of 20 pounds doubles risk of heart disease
- Weight reduction of 5-10% increases HDL levels and reduces LDL & triglycerides.

○ HTN:

- 26% of obese people have HTN, obesity doubles chances.
 - Losing just a few pounds can lower your blood pressure.
- 

- Respiratory problems:
 - Sleep apnea linked to obesity.
 - Losing 10-15% of body weight can cure apnea.
- Psychological & social effects:
 - Emotional suffering.
 - Discrimination at work & social settings.
 - Rejection, shame & depression are common.
 - American society equates thinness with attractiveness, which makes overweight people feel unattractive.
- Death (Framingham Heart study):
 - 1% increase in risk of death in next 26 years for every extra pound of weight gain from age 30-42.
 - 2% increase in each pound for ages 50-62.
 - Weight loss reverses disease and risk factors!



OBESITY TRENDS AMONG U.S. ADULTS BETWEEN 1985 AND 2007

Definitions:

- **Obesity:** Having a very high amount of body fat in relation to lean body mass, or Body Mass Index (BMI) of 30 or higher.
- **Body Mass Index (BMI):** A measure of an adult's weight in relation to his or her height, specifically the adult's weight in kilograms divided by the square of his or her height in meters.

OBESITY TRENDS AMONG U.S. ADULTS BETWEEN 1985 AND 2007

Source of the data:

- The data shown in these maps were collected through CDC's Behavioral Risk Factor Surveillance System (BRFSS). Each year, state health departments use standard procedures to collect data through a series of monthly telephone interviews with U.S. adults.
- Prevalence estimates generated for the maps may vary slightly from those generated for the states by BRFSS (<http://aps.nccd.cdc.gov/brfss>) as slightly different analytic methods are used.

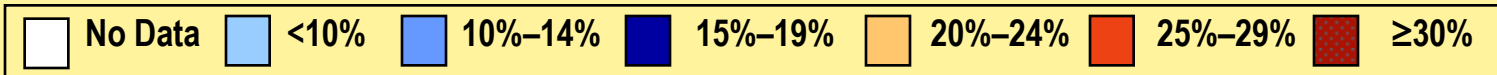
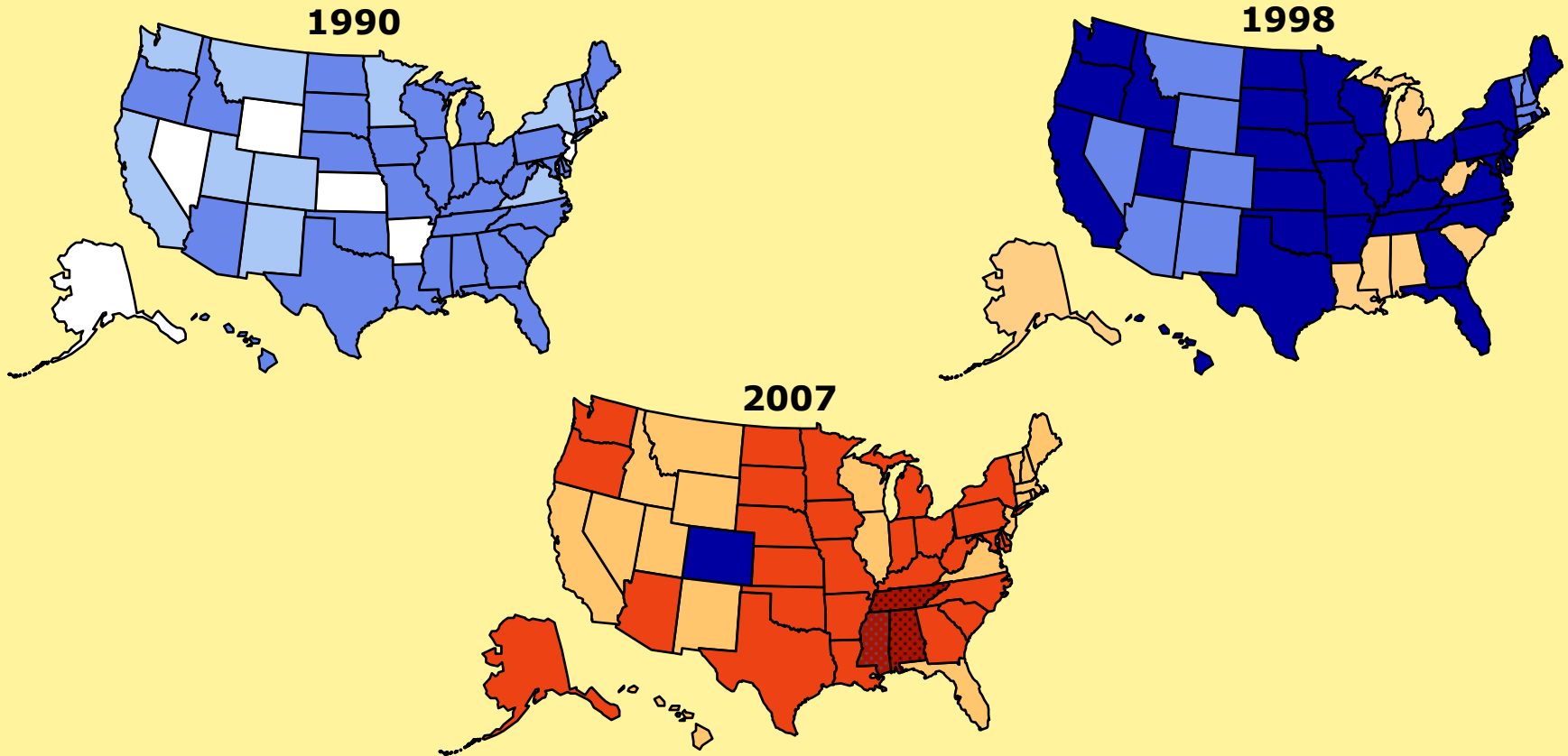


- In **1990**, among the states participating in the Behavioral Risk Factor Surveillance System, 10 states had a prevalence of obesity less than 10%, and no states had a prevalence equal to or greater than 15%.
- By **1998**, no state had a prevalence less than 10%, seven states had a prevalence of obesity between 20-24%, and no state had a prevalence equal or greater than 25%.
- In **2007**, only one state (Colorado) had a prevalence of obesity less than 20%. Thirty states had a prevalence equal to or greater than 25%; 3 of these states (Alabama, Mississippi, Tennessee) had a prevalence of obesity equal to or greater than 30%.

Obesity Trends* Among U.S. Adults

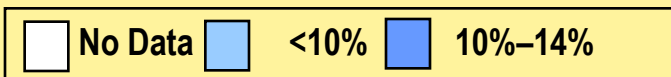
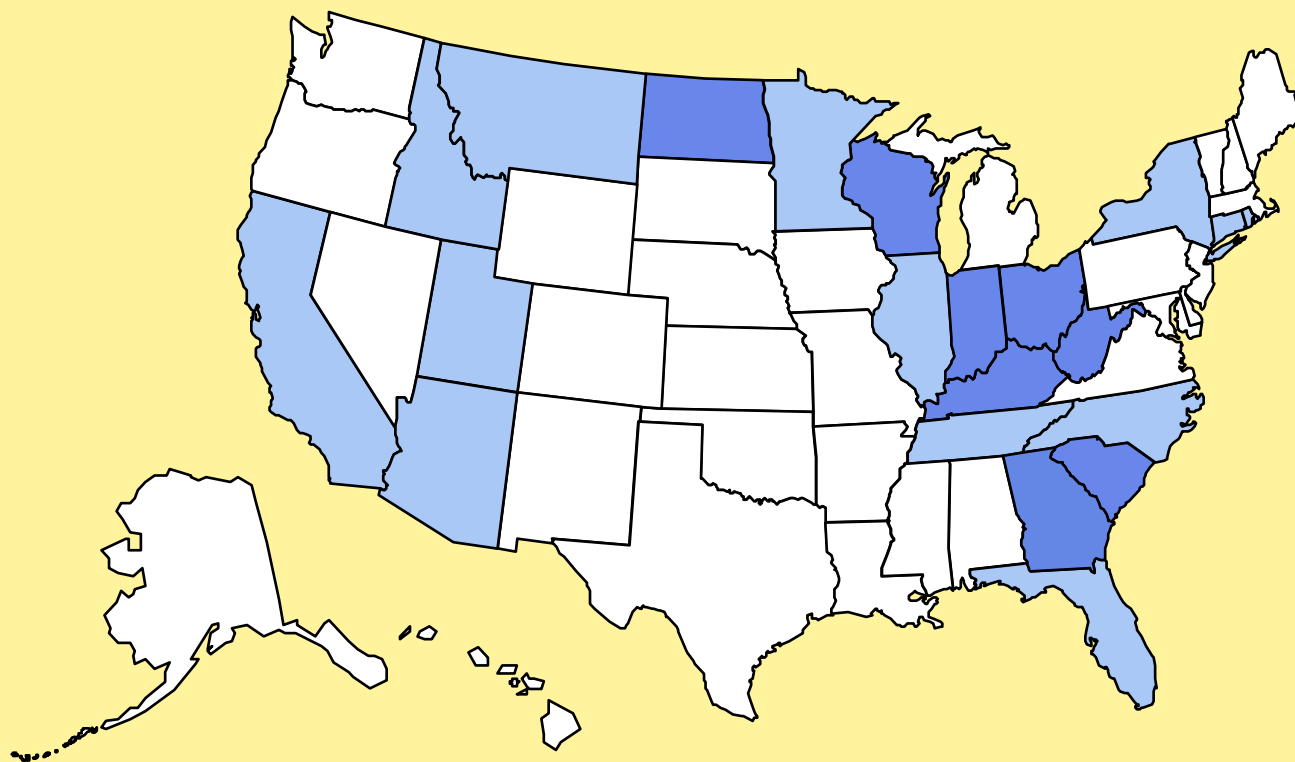
BRFSS, 1990, 1998, 2007

(*BMI ≥ 30 , or about 30 lbs. overweight for 5'4" person)



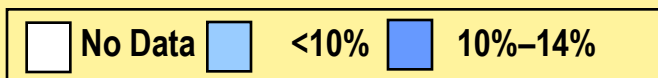
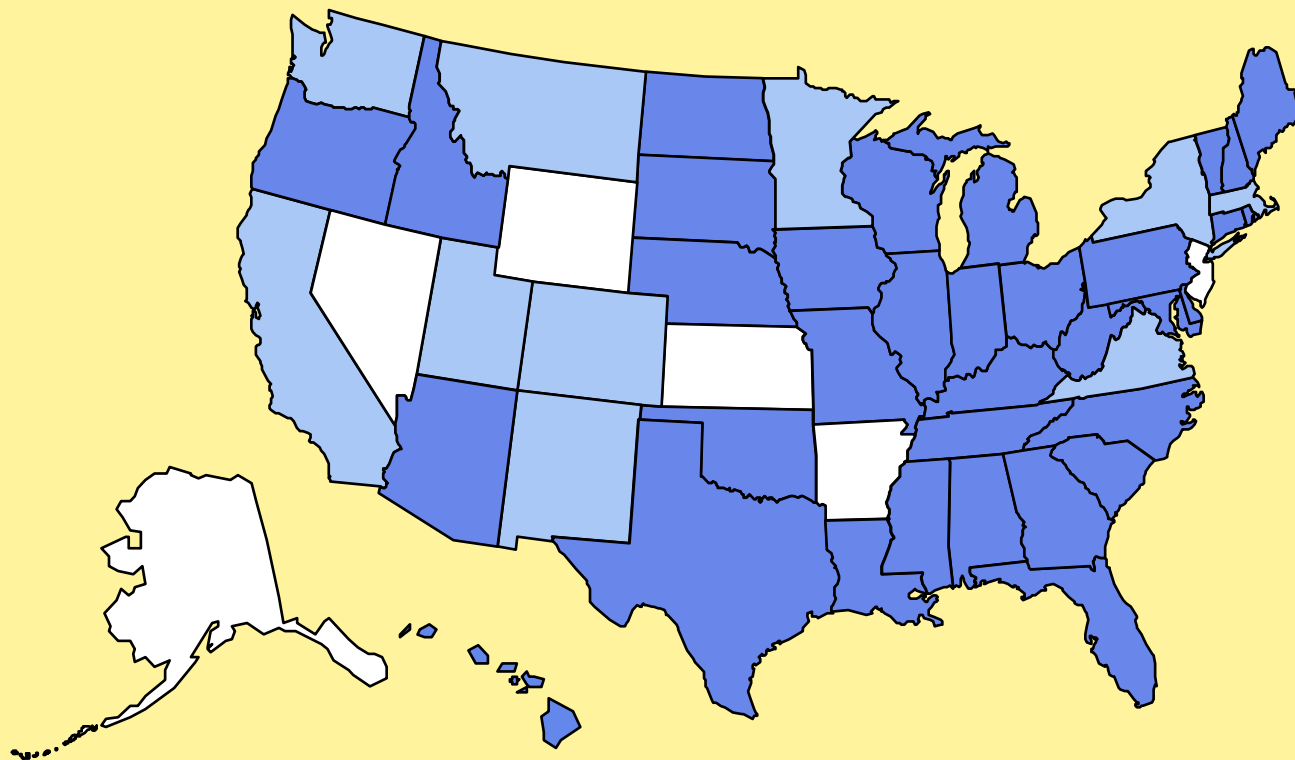
OBESITY TRENDS* AMONG U.S. ADULTS

BRFSS, 1985 (*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



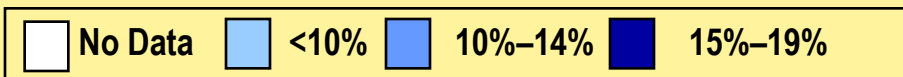
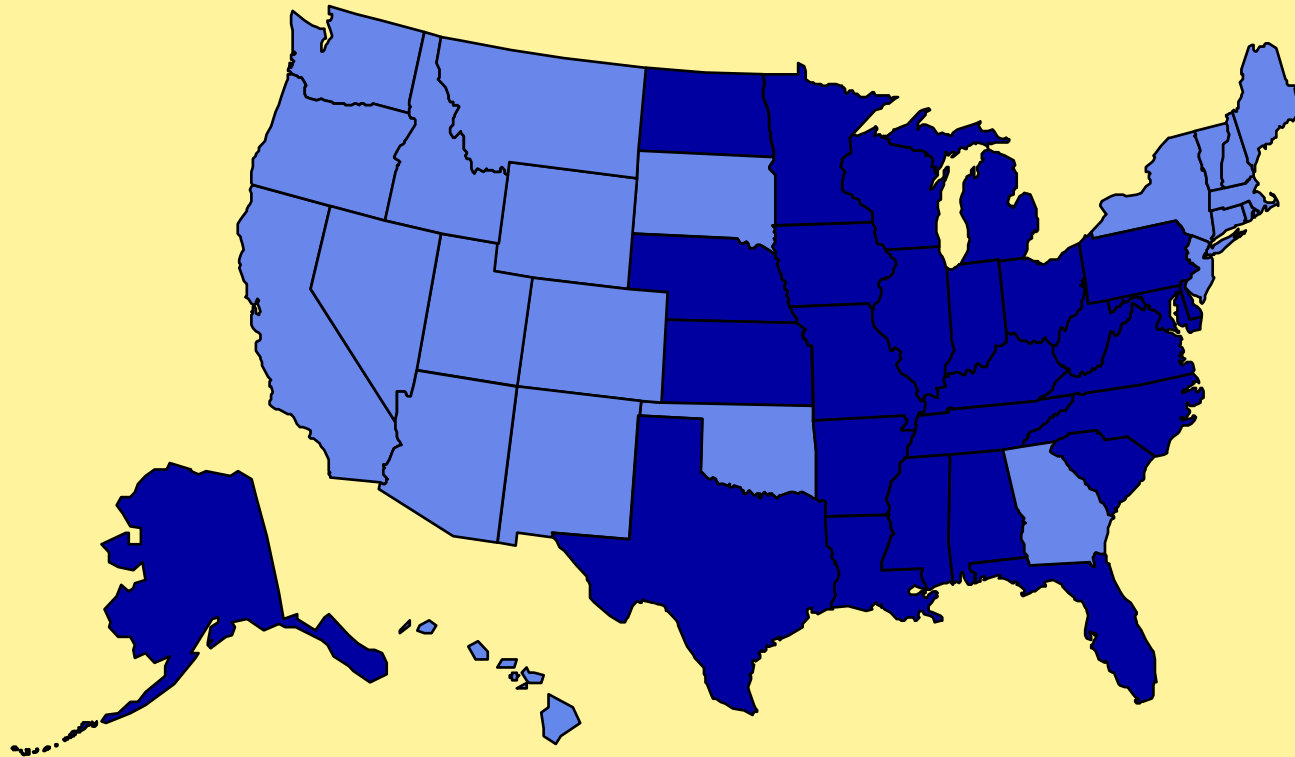
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BRFSS, 1990 (*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



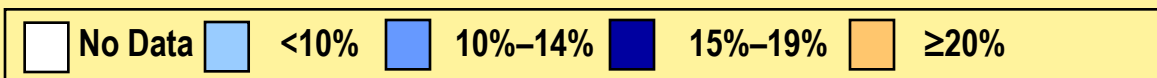
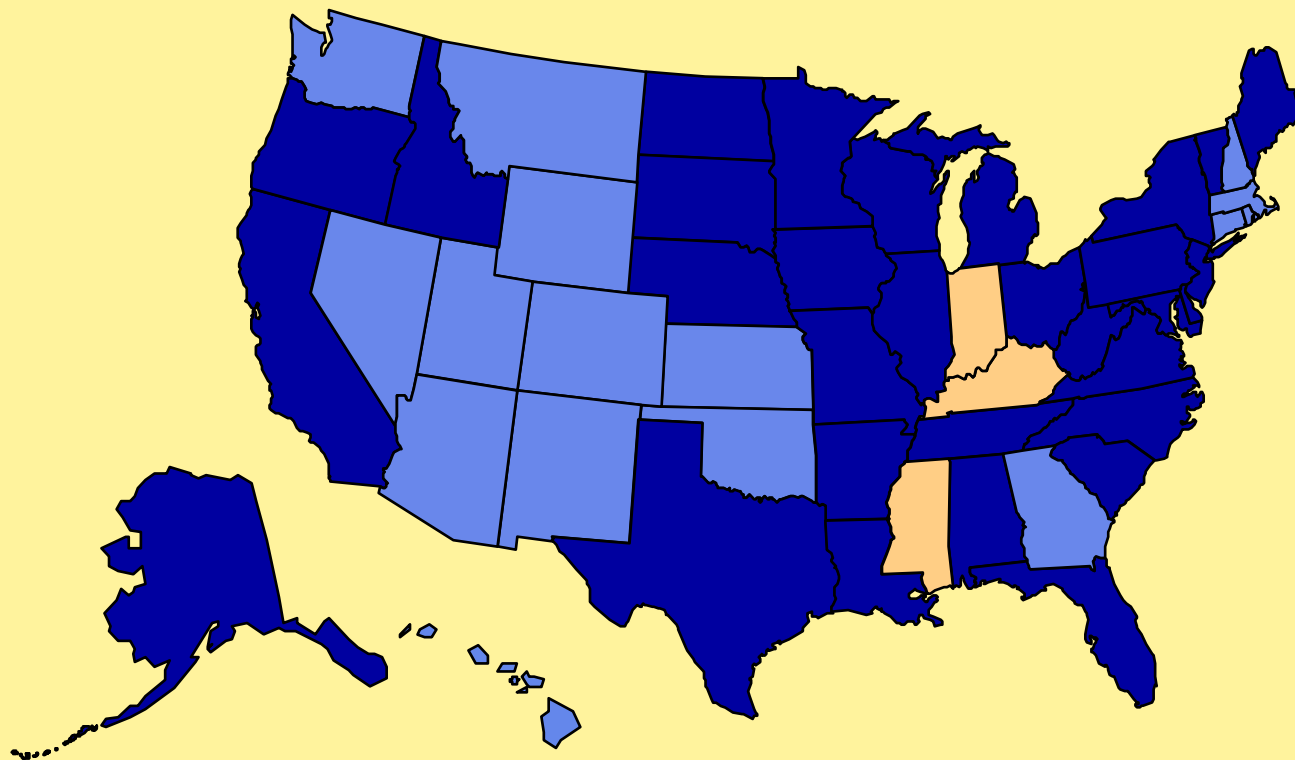
OBESITY TRENDS* AMONG U.S. ADULTS

BRFSS, 1995 (*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



OBESITY TRENDS* AMONG U.S. ADULTS

BRFSS, 1997 (*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



PULSE CHECK

- Obesity increases by over 50% last decade!
- Industrialization & Commercialization:
 - Mass production of food.
 - Processed, synthetic foods full of preservatives, colorings, toxins and chemicals, hormones, antibiotics, carcinogens etc.
 - Food DEPRIVED from essential nutrients!
- No Education & Prevention in place:
 - Majority of insurance companies do NOT yet reimburse for the treatment of obesity itself (just for sequelae).
 - Food industry spends billions/year on advertising; almost nothing is spend on promoting healthy eating!



NATIONAL CONSUMPTION AVERAGES

- Average American male:
 - 2,800 cal/day.
- Average American female:
 - 1,800 cal/day.
- Study on dietary recall:
 - Average person estimates that they consume 30-40% less than they actually do!
- Last 1-2 decades: average adult gained 1-5lbs each year!
- 1lbs of body weight = 3,500 calories.



TRENDS

- Decrease in consumption of foods high in fat.
- Increase in foods with added fat such as fried foods and butter.
- Increase in fruit and vegetable servings, BUT 18% of all vegetables are potatoes in French fries.
- Cheese consumption increased by 250%, due to increase in pizza and cheesburger consumption).
- UNC study (1977 – 1996):
 - Calorie content of food increased: soft drinks (49), hamburgers (97), fries (68), mexican (133), salty snacks (93).
- Restaurants: eating out increased by 200%.
 - Fast food: higher fat & sugar content.





CAUSES & TREATMENT OF OBESITY

Comprehensive overview

CAUSES



CAUSES

○ Nature or nurture?

- 80% of children born to two obese parents will become obese; only 14% of children born to normal-weight parents become obese.
- Studies on adopted children show that genetics account for only 33% of a child's weight.
- Lifestyle factors are more important: physical activity, eating habits; hereditary only controls the speed of your metabolism.



- “You are what you eat”:
 - Basically that is true.
 - Genetics play a 33% role.

- Don't move it. Don't lose it
 - CDC: 37% of obese people don't exercise
 - Sedentary individual may begin gain weight on as few as 1800 calories (athletes may burn up to 5000 calories/day)
 - Regular exercise burns calories & builds lean muscle mass (which in turn burns more calories)



○ Fast food = fast fat

- More fat & calories than needed.
- Low-calories available, most people don't order them.
- Typical fast-food meal averages 700-1200 calories.
- Supersizing with fries & soda seems like a bargain but comes with a big caloric price:
 - Supersized fries has a whopping 540 calories and 26 grams of fat (small order 210 calories and 10 grams of fat).
 - A large 32-ounce coke has 310 calories (small 150 calories.)
- Eat too fast: research has shown that the best way to moderate how much you eat is to relax, enjoy your food and focus on your meal.



○ Smokers:

- Gain up to 10 pounds after quitting.
- Most return to normal weight after 1 year.
- Gain = intake of extra calories 1st month with a peak at 6 months.
- Nicotine probably increases metabolic rate.

○ Drug-induced gains:

- Long-term medication (switch within same class).



- For women only:
 - Early puberty:
 - The earlier a girl reaches menarche, the heavier she's apt to be as an adult (American journal of Clinical Nutrition).
 - 26% of early maturers were obese by age 30, compared to only 15% of girls who started their periods later in life.
 - Pregnancy:
 - 5 pounds or more after pregnancy which many women never lose; especially if they gain more than 35 pounds.
 - Many lose 10 pounds immediately following delivery, and another 5 pounds in first month or two. The rest of the weight usually continues to drop slowly over next 6 – 12 months; depending on:
 - Caloric intake,
 - Activity level,
 - Breast-feeding.



○ Sleep & weight:

- Less sleep = more weight.
- NHANES study:
 - < 7 hours = significantly more obese.
 - 6 hours = 27% increased rate of obesity.
 - 5 hours = 73% increased rate.
- Children: < 10 hours = 3.5 times greater incidence of obesity compared to 12 hours.
- Sleep deprivation at 30 months can predict obesity at age 6.
- Night shifts average 42 minutes less sleep per 24-hour period.



○ Less sleep:

- Less growth hormone.
- Increased cortisol.
- Increased insulin.
- Increased ghrelin.
- Decreased leptin.
- More daytime fatigue, resulting in less physical activity.

○ Recommendation:

- Min. 7 hours sleep; ideally 8 hours (adults).
- Extra 30 minutes/night can reduce BMI.



TREAMENTS



SURGICAL TREATMENT OPTIONS

- Ultimate biological basis of severe obesity is unknown and therefore specific therapy is not available.
- Severe obesity is accompanied by a reduction in life expectancy.
- 1978: NIH consensus on surgery for obesity considered primarily intestinal (jejunoileal) bypass, which exerts its weight loss effects through mal-absorption, decreased food intake, and possible other mechanisms.
 - Effective but serious complications.
- During next 10-15 years: other surgical procedures developed.



○ Bariatric surgery:

- Substantial weight loss may ameliorate co-morbid conditions:
 - Sleep apnea, hypoventilation, glucose intolerance, diabetes mellitus, hypertension, serum lipid abnormalities.
 - Possibly prevents end-organ damage: renal disease, stroke, MI, heart failure.
 - Improvement in mood and other aspects of psychosocial functioning
- Long-term results are of critical importance!

○ Major types of surgery:

- Vertical-banded gastroplasty.
- Roux-en-Y gastric bypass.
- Also available: Biliopancreatic bypass.



RISKS

- Immediate mortality rate very low.
- Morbidity in early postoperative period as high as 10%: wound infections, dehiscence, leaks from staple line breakdown, stomal stenosis, marginal ulcers, various pulmonary problems, DVT.
- Later postoperative period other problems may arise: pouch and distal esophageal dilation, persistent vomiting, cholecystitis, failure to lose weight.
- Mortality and morbidity rates higher with re-operation.
- Long-term: micronutrient deficiencies (B12, folate, iron) are common.



- “dumping syndrome”: GI-distress and other symptoms.

- Quality of life considerations:
 - Reorientation and adjustment to side-effects of surgery.
 - Effect of changing body image:
 - Euphoria can be seen in early postoperative period.
 - Some patients experience significant late postoperative depression.

- Only if 100 lb. excess body weight (BMI 35-40+), and if ALL other conservative measures failed!



COMMON NON-SURGICAL TREATMENT OPTIONS:

- Very low-calorie diets (VLCD).
- Behavioral modification.
- Exercise.
- Pharmacological agents.
- Non-prescription agents & supplements.
- Treatment of co-morbidity factors.
- Popular diets & weight loss programs.



- VLCD: great success with significant weight reduction (example 20kg in 12 weeks); however without behavior modification patient usually regains weight within 1 year.
 - Less than 800 cal/day (liquid diets) – Health concerns!
 - Unsafe & Unnecessary (No better results than LCD).
 - Combine VLCD with behavior modification for long-term results.

- Behavioral modification:
 - Therapeutic approach based on the assumption that habitual eating and physical activity behaviors must be relearned to promote long-term weight change.

- Exercise (will be discussed in detail later).



DRUG THERAPY

- Remember to eliminate or substitute drugs which cause weight gain!
- GOAL: promote negative energy balance.
- Pharmacological mechanisms:
 - Reduced energy intake:
 - Reduce hunger.
 - Increase satiety.
 - Reduce absorption.
 - Reduce fat or carbohydrate preference.
 - Increased energy expenditure:
 - Increase metabolic rate, increase thermogenesis.
 - Activity stimulation (exercise, fidgeting).
 - Increased fat oxidation.



CI TO DRUG THERAPY

- Pregnancy.
- <18, elderly: limited data.
- Unstable cardiac disease, valve disease & Pulmonary disease.
- Uncontrolled HTN.
- Severe systemic illness.
- Unstable psychiatric history.
 - History of anorexia.
- Incompatible medications:
 - MAO.
 - Migraine drugs.
 - Adrenergic agents.

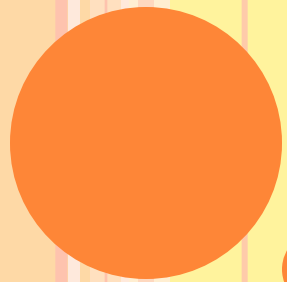


WEIGHT LOSS AGENTS - HISTORY

- 1890: Thyroid extract.
 - Catabolic effect on heart and bones.
- 1930: Dinitrophenol.
 - Neuropathy, cataracts.
- 1937: Amphetamines.
 - Addiction.
- 1967: 'Rainbow' pills (amphetamine, digitalis, diuretics).
 - Deaths.
- 1971: Aminorex.
 - Pulmonary hypertension.
- 1978: VLCD (collagen based).
 - Deaths.
- 1997: Fenfluramine/phentermine.
 - PPH, vascular insufficiency.

**Clinical Trials:
Average weight loss =
5lbs in 52 weeks.**





THE END...