

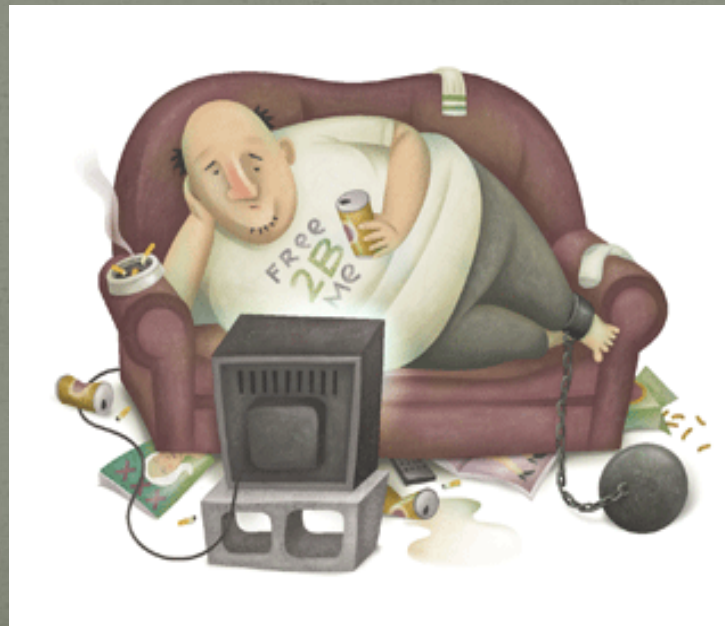
OBESITY: Meaning, Causes, effects & Management

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Meaning of Obesity

- Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems.



Definition:

By WHO:

- Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health.
- A person with a BMI of 30 or more is generally considered obese. A person with a BMI equal to or more than 25 is considered overweight.
- $BMI = \text{weight (kg)} / [\text{height sq. (m}^2\text{)}]$

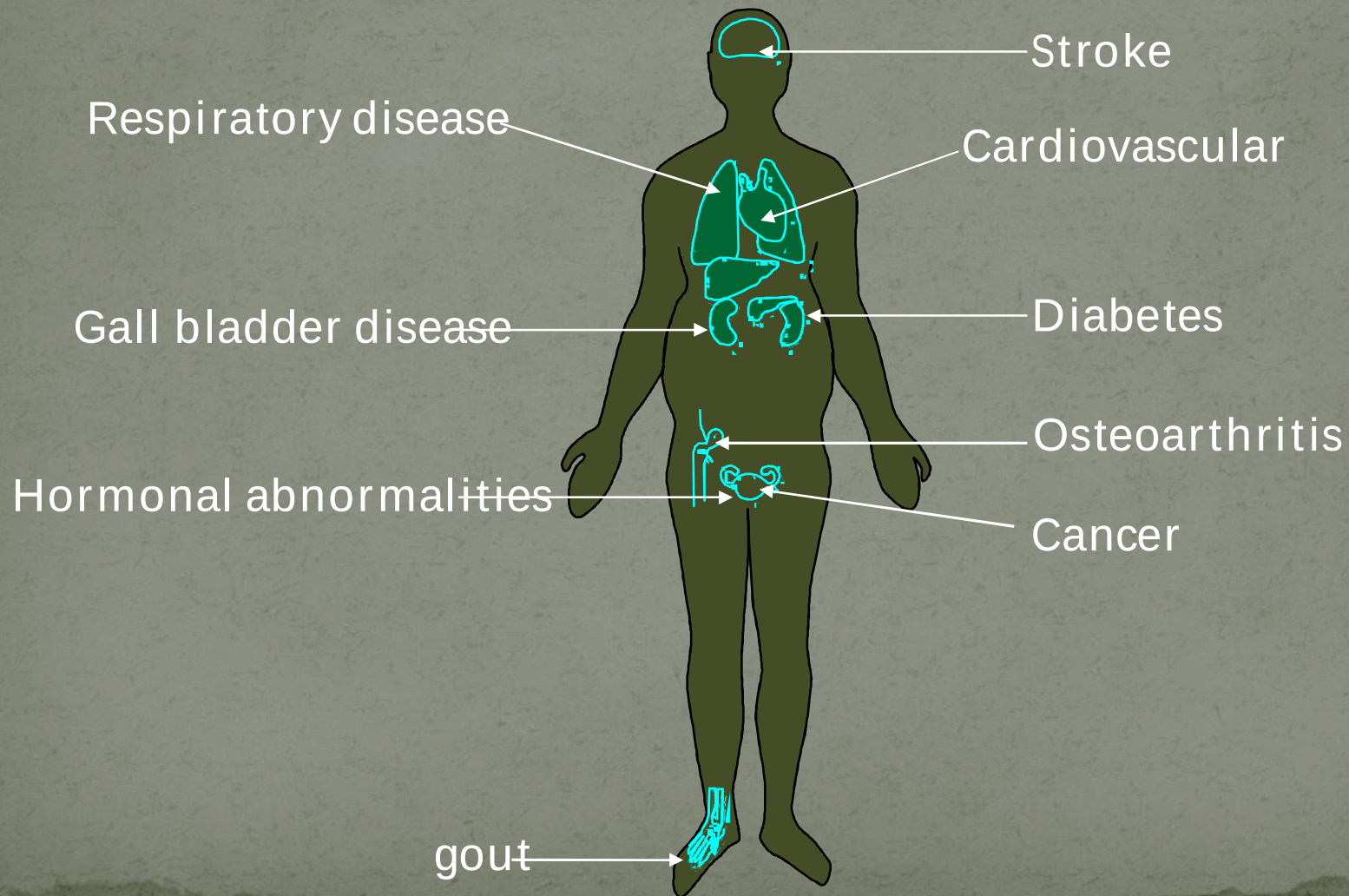
BMI Classification:

category	BMI	Risk of Co-morbidities
Underweight	< 18.5	
Normal	18.5 – 24.9	Average
Overweight	25.0 – 29.9	Increased
Obese I	30.0 – 34.9	Moderate
Obese II	35.0 – 39.9	Severe
Obese III	≥ 40	Very severe

- Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, Stroke, Hypertension, asthma, psychological disorders (Bulimia Nervosa & Anorexia Nervosa), certain types of cancer, and osteoarthritis.



Physical Effects of Obesity



Eating Disorders

- Anorexia nervosa
 - Refusal to maintain normal body weight
 - An intense fear of gaining weight
 - A distorted body image
 - The absence of at least three menstrual cycles
- Bulimia nervosa
 - Repeated eating binges and rapid consumption of large amounts of food, stopping only because of severe abdominal pain or sleep
- Binge eating disorder (BED)

Anorexic or fashion victim?



- As a result, obesity has been found to reduce life expectancy.

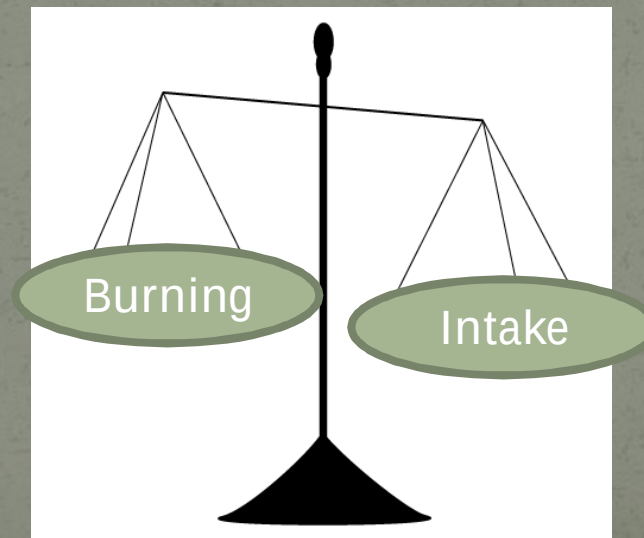
Prevalence:

WHO's latest projections indicate that globally in 2005:

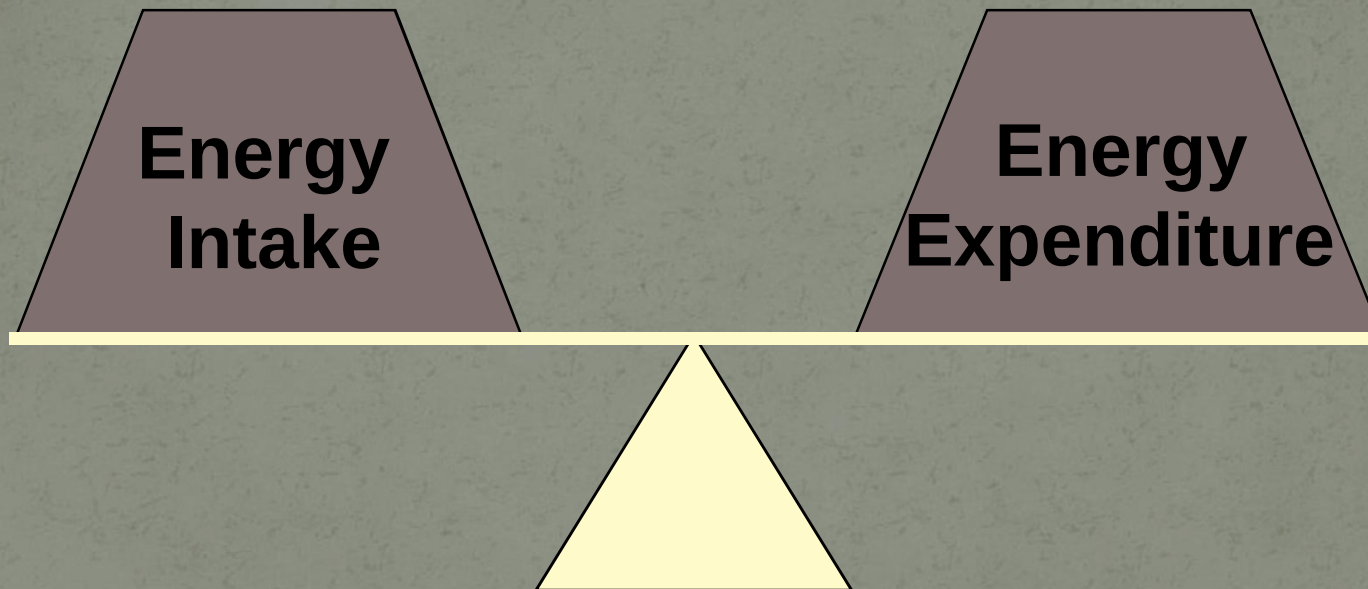
- An estimated 1.6 billion adults worldwide are overweight ($BMI > 25$) and 400 million are obese ($BMI > 30$), and potentially as many as 20 million children are overweight.
- WHO further projects that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese.

Causes:

- The fundamental cause of obesity and overweight is an energy imbalance between calories consumed on one hand, and calories expended on the other.



Causes of Obesity



nutritional, activity levels, endocrine,
genetic, drugs



Etiologies:

- ❑ Life style & physical inactivity.
- ❑ Diet & eating patterns.
- ❑ Smoking.
- ❑ Age.
- ❑ Sex.
- ❑ Race.



Cont.

- Medications:
 - Cortisol and other glucocorticoids.
 - Sulfonylureas.
 - Antidepressants.
 - Antipsychotics, e.g. MAOIs, Risperidone.
 - Oral contraceptives.
 - Insulin.

Cont.

- Familial
- Genetic:
 - ❑ Prader-Willi syndrome.
 - ❑ Laurence-Moon-Biedl (Bardet-Biedl) syndrome.
 - ❑ Down syndrome .
 - ❑ Turner syndrome.
 - ❑ Leptin deficiency or resistance to leptin action.

Cont.

- Psychiatric causes:
 - ✓ Major depression.
 - ✓ Binge eating disorders.

Risk Factors for Obesity

- Higher in minorities, especially women
- Environmental factors
 - Advertising
 - Fast food
 - Bottle feeding infants
 - Misleading food labels
 - Sedentary lifestyles
 - Automated equipment
 - Computer and TV use
 - Decline in physical education requirements in schools

French Fries

20 Years Ago



210 Calories
2.4 ounces

Today



610 calories
6.9 ounces

Calorie Difference: 400 calories

How to burn* 400 calories:
Walk leisurely for 1 hr 10
Minutes



*Based on 160 pound person

Soda

20 Years Ago



85 Calories
6 ½ ounces

Today



250 calories
20 ounces

Calorie Difference: 165 calories

How to burn* 165 calories:

Garden for 35 Minutes



*Based on 160 pound person

Turkey Sandwich

20 Years Ago



320 calories

Today



820 calories

Calorie Difference: 500 calories

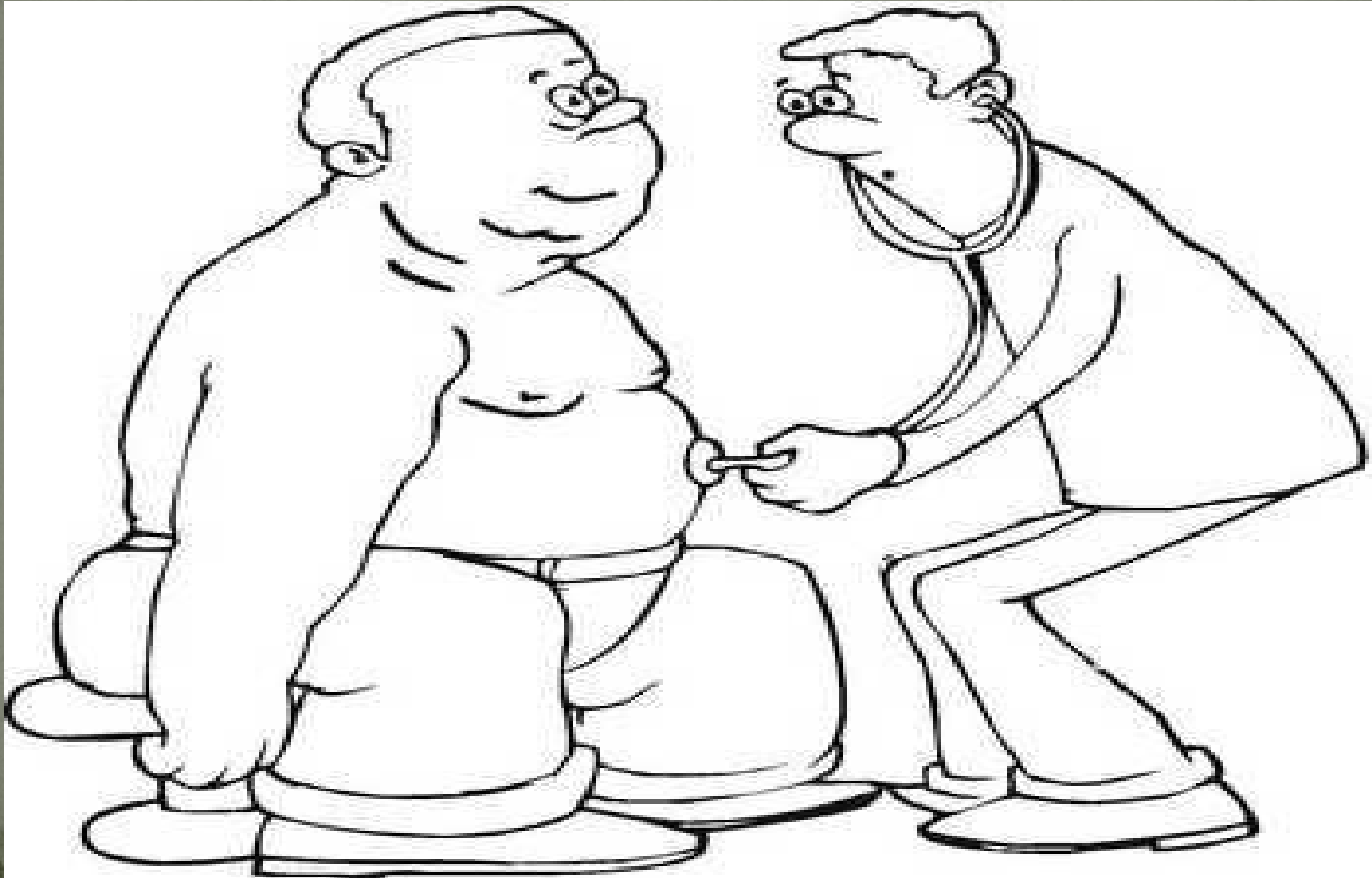
How to burn 500 calories:
Bike for 1 hour and 25 minutes



*Based on 130 pound person

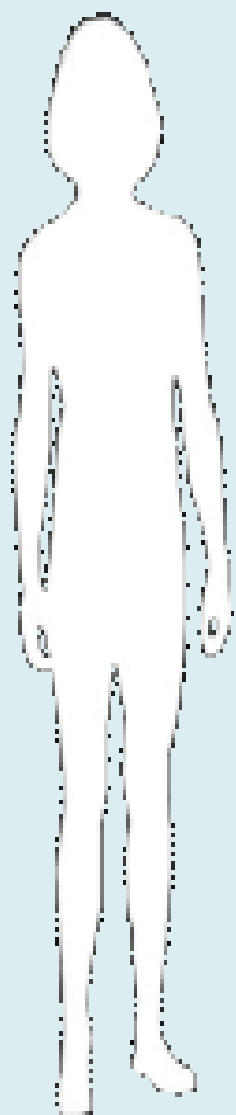


Physical examination

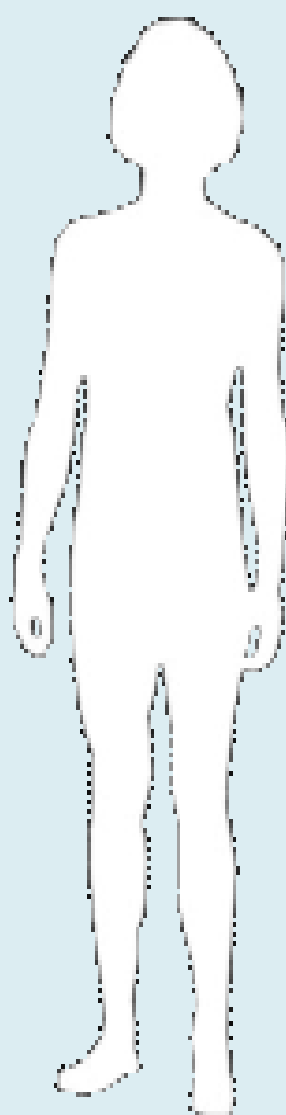


Diagnosis of obesity and evaluation of health status through three key measures

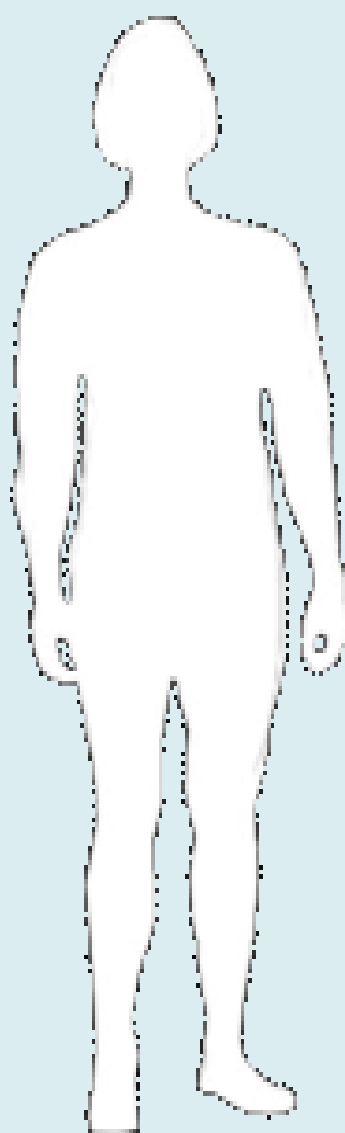
- (1) Body mass index (BMI).
- (2) Waist circumference.
- (3) Risk factors for diseases and conditions associated with obesity.



Normal Weight
BMI 18.5 – 24.9



OVERWEIGHT
BMI 25 – 29.9



OBESE
BMI 30 – 34.9



SEVERE OBESE
BMI 35 – 39.9



MORBIDLY OBESE
BMI 40 – ++

The second step

- Measure waist circumference.
- Important to note that waist circumference is not measured at the level of the umbilicus (the “natural” waist), but at the level of the iliac crest.



"Apple" vs. "Pear"



Body fat distribution

Apple shaped obesity



Lean MEJ et al. Lancet; 1998; 351:853-6

waist to hip ratio (WHR)

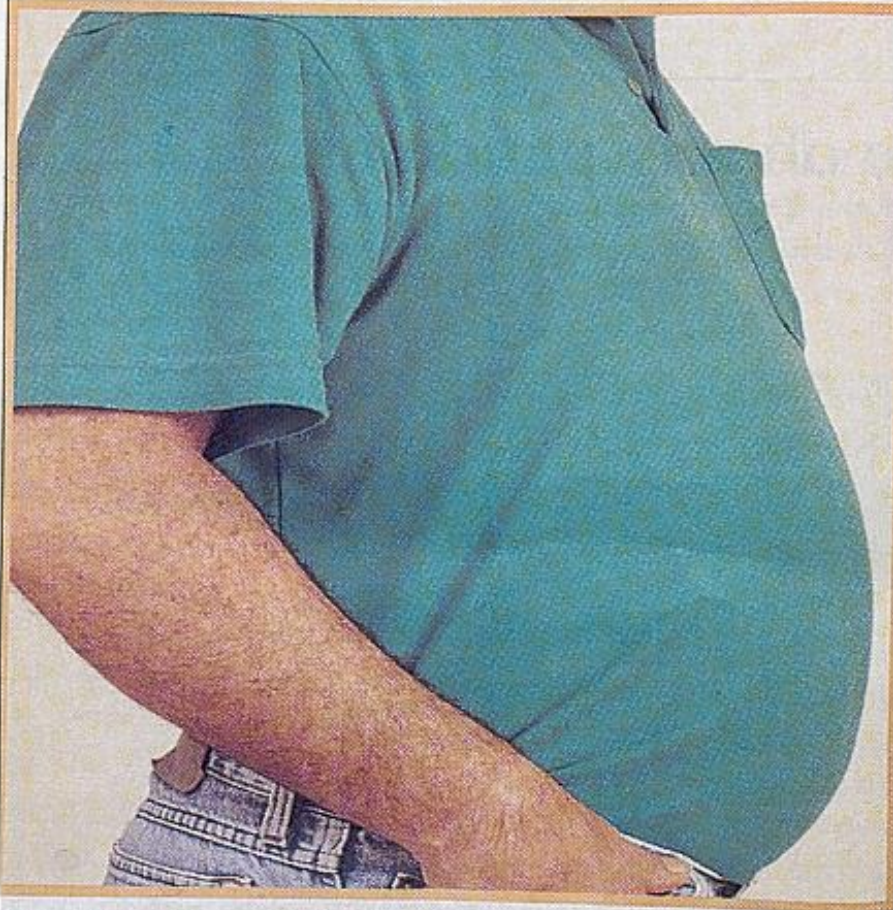
- A measurement of waist to hip ratio (WHR) is an appropriate method of identifying patients with abdominal fat accumulation.
- The waist is measured at the narrowest point and the hips are measured at the widest point.
- A high WHR is defined as >0.95 in men and >0.85 in women.

The Third step

- Review your patients' medical, social and family history for current and potential obesity-related symptoms and diseases.

CAUTION:

HAZARDOUS WAIST



A hazardous substance is stored nearby. It's the excess fat packed around your middle. Fat that increases your risk of heart disease and other serious illnesses, such as diabetes. Good reason to start a **waist disposal** program today.

Extra Value Meals

Includes Large Fries
& Medium Soft Drink
not available with the All-American Meal™

1 Big Mac® Meal



only
\$3.79

2 Two Cheeseburgers Meal



only
\$2.99

3 Quarter Pounder® with Cheese Meal



only
\$3.79

4 Double Quarter Pounder® with Cheese Meal



only
\$4.59

Classics

Super-Size Your Meal!

5 6 Piece Chicken McNuggets® Meal



only
\$3.99

8 oz

12 oz

16 oz

20 oz

34 oz

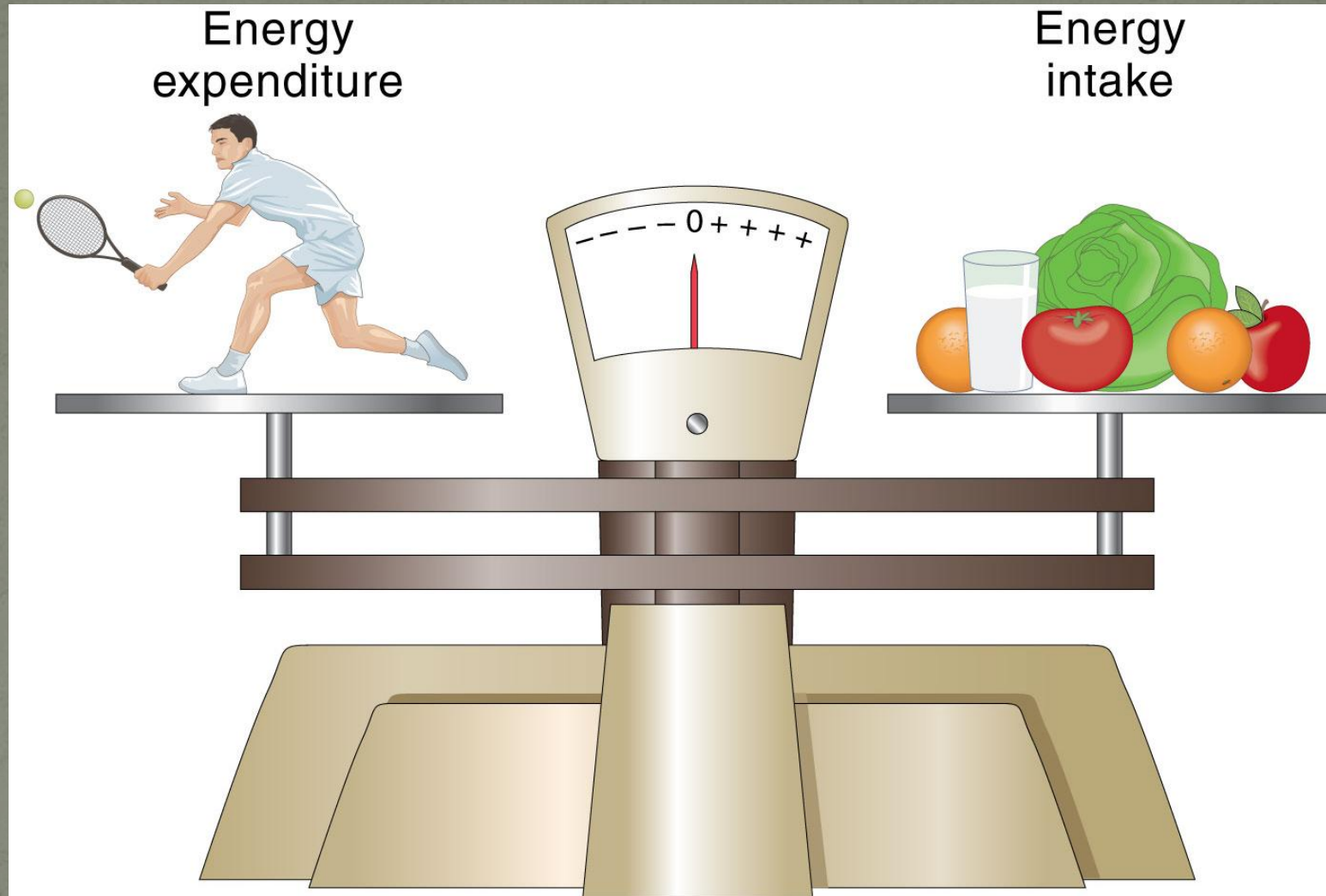


Courtesy of Dr. Kelly Brownell



Courtesy of Dr. Kelly Brownell

The Concept of Energy Balance



Energy expenditure = Energy intake

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Treatment:

- Behavioral.
- Diet.
- Pharmacological treatment.
- Exercise.
- Intra-gastric balloon.
- Surgical treatment.

Behavioral:

- Identify the circumstances that trigger eating.
- Grocery shopping with a pre planned list.
- Reduce temptations (no food in sight).
- Do nothing else while eating (watch TV or read magazines).
- Eat slowly.

Diet:

- Balanced, low-calorie diets :
 - Energy deficit ranging from 500 to 1000 kcal/day.
 - Low fat diet.
 - Helps losing 0.5 kg/week that lead to 10% weight loss over 6 months.
- Very low-calorie diets (VLCDs):
 - High protein diet with less fat & no carbohydrates.
 - Energy is less than 800 kcal/day.
 - Helps losing 1 – 1.5 kg/week.
- Low-fat diets.
- Low-carbohydrate diets.
- Midlevel diets (e.g. Zone diet in which the 3 major macronutrients [fat, carbohydrate, protein] are eaten in similar proportions of 30-40%)

Exercise:

- Patients should be screened for cardiovascular and respiratory adequacy.
- **Aerobic exercise:**
 - Is of greatest value for subjects who are obese.
 - Ultimate minimum goal:
 - 30-60 minutes of continuous aerobic exercise 5-7 times per week to lose weight
 - 30-60 minutes of continuous aerobic exercise 3-5 times per week to prevent long term weight regain.
- **Benefits:**
 - Helps build muscle mass.
 - Increases metabolic activity of the whole-body mass.
 - Reduces body-fat proportions.
 - Decreases the amount of compensatory muscle mass loss that is typical in the setting of weight loss.

Pharmacological:

- Lasts for several years.
- Weight will increase again after cessation of the drugs in most cases.
- If no significant weight reduction in at least 3 months, stop the drug (5% of baseline weight).

PRACTICAL TIPS FOR MANAGING OBESITY

- limit energy intake from total fats;
- increase consumption of fruit and vegetables, as well as legumes, whole grains and nuts;
- limit the intake of sugars;
- engage in regular physical activity;
- achieve energy balance and a healthy weight.
- make regular physical activity and healthier dietary patterns affordable and easily accessible to all - especially the poorest individuals.

PRACTICAL TIPS FOR MANAGING OBESITY...

- The food industry can play a significant role in promoting healthy diets by:
- reducing the fat, sugar and salt content of processed foods;
- ensuring that healthy and nutritious choices are available and affordable to all consumers;
- practicing responsible marketing;
- ensuring the availability of healthy food choices and supporting regular physical activity practice in the workplace.

Thank

you

