

OBESITY

# Definition

- Obesity: It is a state of excess adipose tissue mass.
- BMI (Body Mass Index) is the method most used to measure obesity.

# Body mass index

- WHO Classification
- Normal weight: 18.5-24.9 kg/m<sup>2</sup>
- Overweight: 25-29 kg/m<sup>2</sup>
- Grade I Obesity: 30-34 kg/m<sup>2</sup>
- Grade II Obesity: 35-39.9 kg/m<sup>2</sup>
- Grade III Obesity: > 40 kg/m<sup>2</sup>

# Other methods for determining obesity

- Anthropometry (skinfold thickness)
- TAC
- Magnetic resonance
- Electrical impedance

# BMI

## Body Mass Index (BMI)

19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40+



Normal



Overweight



Obese  
Class I



Obese  
Class II



Obese  
Class III

# What causes overweight and obesity?

- The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and expended.
- In the world, there has been: an increased intake of high calorie foods that are high in fat, salt and sugars but low in vitamins, minerals and other micronutrients.

WHO descriptive note 301 January 2015

# What causes overweight and obesity?

- And a decrease in physical activity as a result of the increasingly sedentary nature of many forms of work, new modes of travel and increasing urbanization.

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# Epidemiology

- Since 1980, obesity has more than doubled worldwide.
- In 2014, over 1.9 billion adults aged 18 or older were overweight, of which 600 million were obese.
- In 2014, 39% of adults 18 and older were overweight, and 13% were obese.

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# Epidemiology

- Most of the world population lives in countries where overweight and obesity claim more people's lives than insufficient weight.
- In 2013, over 42 million children under five were overweight.

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# Epidemiology

- Childhood obesity is associated with a higher likelihood of obesity, premature death and disability in adulthood. However, in addition obese children also suffer breathing difficulties, increased risk of fractures and hypertension, and have early markers of cardiovascular disease, insulin resistance and psychological effects.

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# Overweight and obesity in children

- Overweight, BMI above the 85th percentile for age
- Height / weight >85th percentile
- Weight > 120 % of the ideal weight



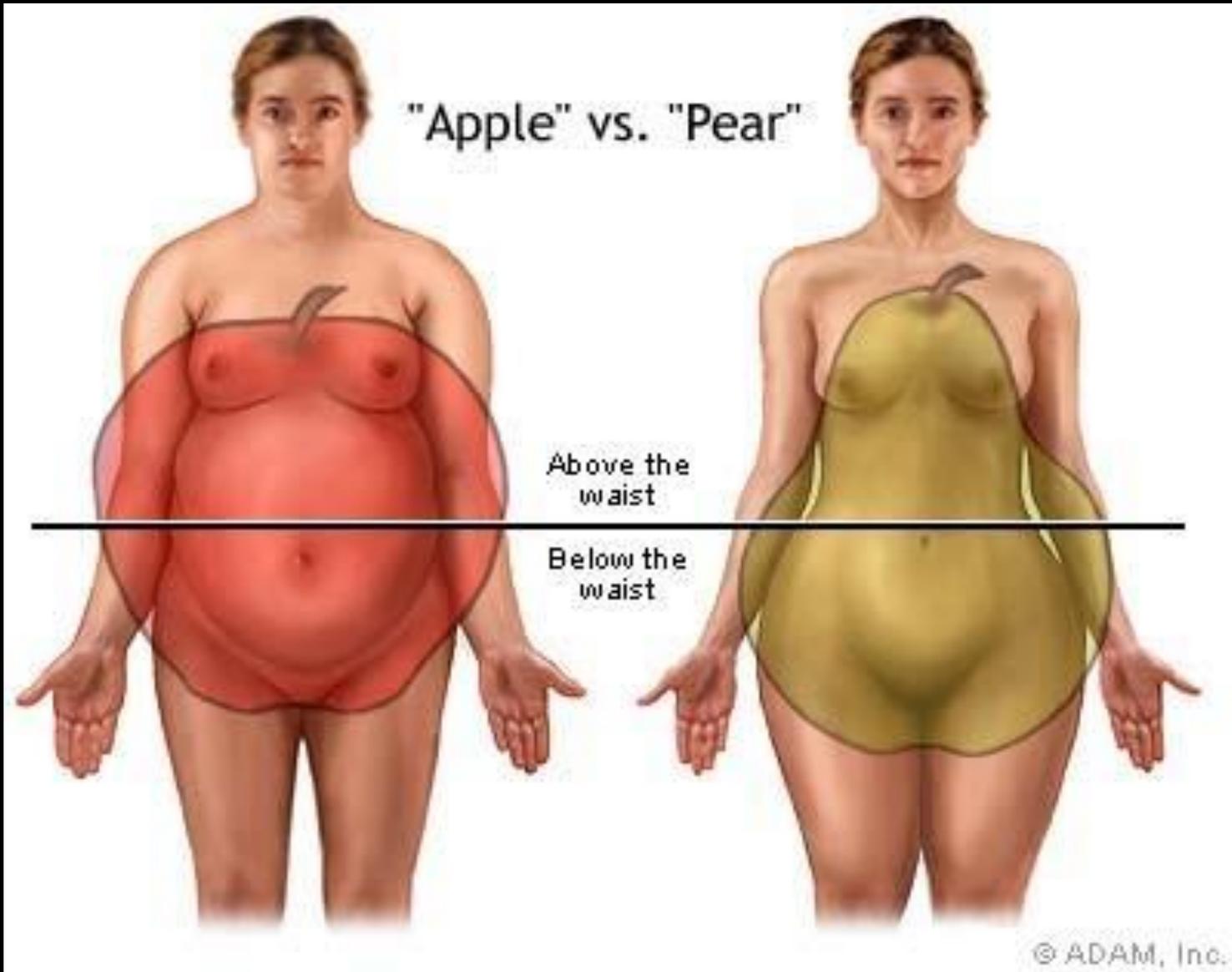
# Types of obesity

- Distribution of adipose tissue in the different anatomic deposits is also important.

# Types of obesity

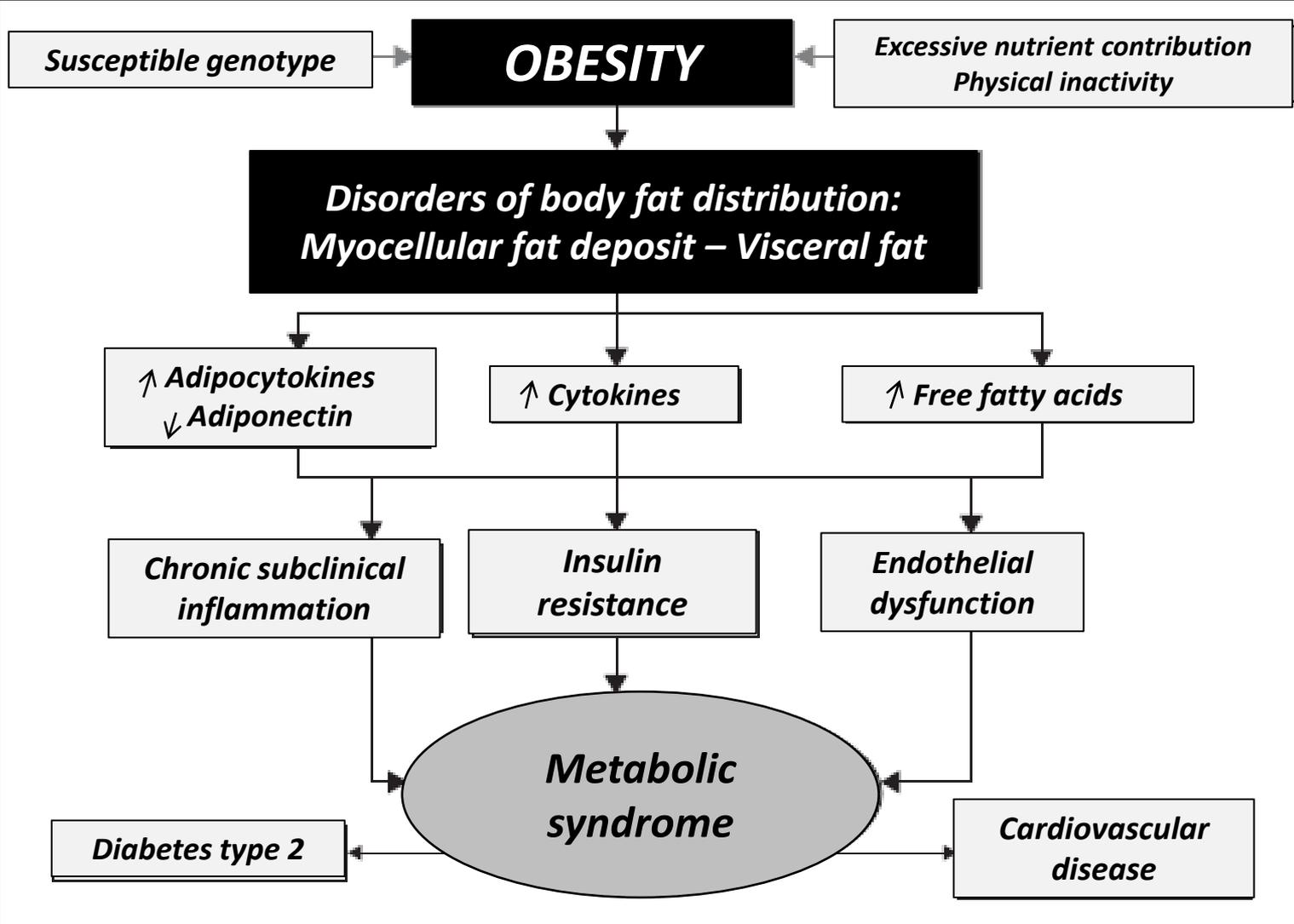
- Android / central / abdominal / apple obesity: Increased risk of dyslipidemia, diabetes, cardiovascular disease and mortality.
- Gynecoid / peripheral / pear: Increased risk of varicose veins and knee osteoarthritis
- Homogeneous distribution: Excess fat is not predominant in any area of the body.

# Types of obesity



# Classification of obesity

- Hyperplastic: Increase in the number of adipocytes.
- Hypertrophic: Increased volume of adipocytes
- Primary: imbalance between ingestion and energy expenditure.
- Secondary: the consequence of a certain disease that causes increased body fat.



# Pathological consequences in obesity

- Insulin resistance and type 2 diabetes mellitus
- Reproductive disorders
- Cardiovascular disease
- Pneumopathy
- Gallstones
- Cancer
- Bone, joint and skin diseases

# Organs and systems affected by obesity

## **Cardiovascular**

- Hypertension
- Congestive heart failure
- Pulmonary heart
- Varicose veins
- Pulmonary embolism
- Coronary artery disease

## **Respiratory**

- Dyspnea
- Obstructive sleep apnea
- Hypoventilation syndrome
- Pickwick syndrome
- Asthma

# Organs and systems affected by obesity

## Endocrine

- Metabolic syndrome
- Mellitus diabetes
- Dyslipidemia
- Polycystic ovarian syndrome

## Gastrointestinal

- GERD
- Nonalcoholic fatty hepatopathy
- Cholelithiasis
- Hernias
- Colon cancer

# Organs and systems affected by obesity

## **Locomotor system**

- Hyperuricemia and gout
- Immobility
- Osteoarthritis (knees and hips)
- Lumbago
- Carpal tunnel syndrome

## **Genitourinary**

- Stress incontinence
- Obesity-related glomerulopathy
- Hypogonadism (male)
- Breast and cervical cancer
- Pregnancy Complications

# Organs and systems affected by obesity

## **Psychological sphere**

- Depression / low self-esteem
- Body image disturbances
- Social stigmatization

## **Nervous system**

- Cerebrovascular accident
- Idiopathic intracranial hypertension
- Dementia

# Evaluation

- Interrogation centered obesity
  - What factors contribute to the obesity of the patient?
  - In that way does obesity affect the health of the individual?
  - What is the level of risk of the subject, from obesity?
  - What is the objective and expectations of the patient?

# Evaluation

- Is the person motivated to start a weight control and conservation program?
- What kind of assistance does the patient need?

# Evaluation

- Physical exploration to determine the degree and type
- Existing problems
- Level of fitness
- Disposition of patient to accept and practice changes in their lifestyle.

# Treatment goals

- Primary: improve the comorbid conditions arising from obesity and lessen the danger that may arise in the future.
- A realistic goal is the initial weight loss of 10% in a span of six months.

# Treatment

- Diet therapy
- Physical activity as therapy
- Behavioral therapy
- Pharmacotherapy
- Surgery

# Obesity Treatment

## Diet - Caloric Restriction

- Reduce intake by 500 kcal/day (500 mg/week)
  - Control the portions
  - Avoid desserts
  - Avoid fast food
- Count calories

1 g carbohydrates	4 kcal
1 g protein	4 kcal
1 g fat	9 kcal

# Obesity Treatment Exercise

- Energy expended during exercise
- Increased metabolism rate at rest

<u>Activity</u>	<u>30 Min</u>	<u>60 Min</u>
Walking, 1.8 km/h	130 kcal	260 kcal
Cycling, 14.5 km/h	210 kcal	420 kcal
Jogging	320 kcal	640 kcal
Swimming	340 kcal	680 kcal

# Obesity Treatment Behavioral therapy

- Requires identifying and modifying inadequate habits acquired by poor education, ignorance, myths, customs, advertising, etc.
- In many cases the intervention of a specialist (psychology / psychiatry) is required.

# Obesity Treatment Pharmacotherapy

- Medical assessment to prescribe the most appropriate and personalized medicine to each patient is necessary

# Obesity Treatment Surgery

- It is indicated in morbidly obese BMI > 40 kg / m<sup>2</sup>, given the high risk posed by excess weight.
- It should be done in specialized centers.

# The 8 natural remedies

- Water
- Rest
- Exercise
- Sunlight
- Air
- Nutrition
- Temperance
- Hope (trust in God)

# Specific recommendations from EGW

- Abstemiousness in diet is rewarded with mental and moral vigor; it also aids in the control of the passions.

The Ministry of Healing, p. 308

# Specific recommendations from EGW

- Here is a suggestion for all whose work is sedentary or chiefly mental; let those who have sufficient moral courage and self-control try it: At each meal take only two or three kinds of simple food, and eat no more than is required to satisfy hunger. Take active exercise every day, and see if you do not receive benefit.

The Ministry of Healing, p. 310

# Specific recommendations from EGW

- Regularity in eating is of vital importance. There should be a specified time for each meal. At this time let everyone eat what the system requires and then take nothing more until the next meal.

The Ministry of Healing, p. 303

# Specific recommendations from EGW

- Our bodies are Christ's purchased possession, and we are not at liberty to do with them as we please.
- Obedience to the laws of health is to be made a matter of personal duty. We ourselves must suffer the results of violated law.

The Ministry of Healing, p. 310